The Journal of the American Medical Association

VOL. XXV. CHICAGO, NOVEMBER 23, 1895. No. 21.

ADDRESSES.

CHAIRMAN'S ADDRESS.

Delivered before the Section on Neurology and Medical Jurisprudence, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY DANIEL R. BROWER, M.D.

CHICAGO.

Gentlemen:—Through the indefatigable exertions of our distinguished Secretary, we have before us the best program ever presented to the Section.

An effort has been made to arrange the work along three important neurologic lines, and you will have presented to you papers on these several topics from some of the most eminent physicians of the country, and I trust that we will be equally favored in the learned discussions that will follow.

As you observe, the first symposium is on hypnotism, a subject now very prominently before both the profession and the laity, and they earnestly desire that some such representative body as this, will make positive declarations as to its value in the cure of disease and as to its place in criminal jurisprudence. The papers that will be read and the discussion that I trust will follow, will at least bring us *nearer* to a settlement of these important questions.

The symposium on electricity is timely. This force so prominently before everybody, and because of its varied and almost universal use, demands our careful consideration in order that we may assist, at least, in determining its true place in medicine. The work of this Section will, I trust, not only aid in this important solution, but will develop new mechanical appliances to facilitate the use of the energy and new methods of application that may yield better results in treatment.

The last symposium has for its subject epilepsy. As you are well aware, this disease known from the very earliest times, accurately described by the most ancient writers, is still the *bete noir* of the profession. Only about 7 per cent. of the cases are cured, and about one in every five hundred of the population is so afflicted. May we not hope that the papers and discussions that will emanate from this great array of talent may improve this record of curability and diminish this percentage of prevalence?

It is hardly necessary for me to take your time to review the work that has been done in the field covered by this Section during the past year. Every person here present is as familiar with this as I am, but there are certain things in the line of progress with which you may not be so familiar. In the State of Illinois we are about to try the experiment of an industrial epileptic colony, modeled somewhat after the Craig colony of New York and the famous Bielfeld colony in Germany. It is proposed to begin this colony with the epileptics, about eight hundred in all, now in the county almshouses and other public institutions. This colony may in part aid in the more successful treatment, as well as diminish the large proportion of these unfortunates now existing.

In Illinois we are also trying to improve the quality of medical expert testimony. Some recent trials in which much of the medical expert testimony was very discreditable, have aroused the profession to such a degree that the six prominent medical societies of Chicago met by their joint committee and drafted a bill that has been indorsed by all of these several societies, by the State medical society and several of the county and district societies, that may elevate the tone of this most important service. It is as follows:

A draft of a Bill for an Act authorizing the judges of criminal jurisdiction in the State of Illinois to appoint persons to act as expert witnesses:

Be it enacted, By the People of the State of Illinois in the General Assembly represented, That the judges of the circuit and superior courts of the State of Illinois, be and the same are hereby authorized to appoint in the month of January of each year, persons who shall act as expert witnesses in the medical and other sciences in giving opinion upon the evidence, as presented in a hypothetical form, of criminal causes that may be on hearing in the courts presided over by the said judges. Such expert witnesses shall hold their said appointments for one year or until their successors are appointed and qualified. They shall be entered as expert witnesses upon a list of such witnesses kept by the circuit clerk, and the said clerk shall issue a certificate of appointment as such expert witness to the person appointed as above.

Such expert witnesses shall be citizens of the State of Illinois and shall be known in the communities where they reside for their professional competency and personal probity, and if physicians they shall have been at least five years in lawful and active practice. When expert opinion is desired in any cause pending in a criminal court, the trial judge presiding in such cause may, at his discretion, summon for duty under this Act, such expert witnesses to the number of three. Such expert witnesses shall be paid for their services by the county in which the trial for which they are summoned is held, in such sums as may be named by the judge.

It shall be the duty of such expert witnesses to give an opinion on the evidence as presented in hypothetical form in the case in which they are called. Such experts shall be subject to cross examination by both prosecution and defense; but such cross examinations shall be limited entirely to the subjects embraced in their opinion.

In criminal cases previous to trial, if the State's Attorney deems it advisable to have expert opinion, he shall so state to the court having jurisdiction of the cause, and the judge receiving such statement may summon expert witnesses to serve under this Act.

This Act has been amended as follows:

A BILL.

[HOUSE BILL No. 767.]

For an Act to regulate the taking of expert testimony in civil and criminal proceedings:

SECTION 1.—*Be it enacted by the People of the State of Illinois, represented in the General Assembly,* That in any case on trial in a court of record in this State where expert testimony is to be introduced by both the prosecution and the defense, and also in any other case in the discretion of the court, the presiding judge shall, either of his own motion, or at the request of either party to the suit, subpœna one or more persons who shall be known as court witnesses.

SEC. 2.—Such court witnesses shall be citizens of the State

of known personal probity, and only such as are recognized in the communities where they reside as having special knowledge and experience pertaining to the subjects upon which they are to testify; and if physicians, they shall have been not less than five years in lawful and active practice.

SEC. 3.—The presiding court shall fix the fees of such court witness or witnesses, but in no case shall the fees allowed such court witness exceed fifty ($50) dollars per day. Such witnesses shall be paid in the manner provided by law for other witnesses, except that in criminal cases the fees of such witnesses shall be paid by the county.

In this amended form, the bill will probably become a law.

In closing, I can not refrain from making mention of the important studies that have been made on the influence of infectious processes on the nervous system. Drs. Mills, Putnam, Dercum and others have shed a flood of light upon this important subject, and suggest methods of relief that may lead to valuable results.

I must also mention the studies on the use of the thyroid gland in the treatment of sporadic cretinism by Drs. Telford Smith, Byran Bramwell and others that seem to offer some relief to these imbeciles, and teach us relations of the thyroid gland to general nutrition never before known.

RESPONSE TO THE TOAST, "EPHRAIM McDOWELL."

Delivered at Annual Banquet of the Chicago Gynecological Society,[1] Oct. 18, 1895.

BY JOSEPH EASTMAN, M.D.
INDIANAPOLIS.

In a hallowed spot, a typical American home, in Rockbridge Co., Va., Nov. 11, 1771, a male child was born. It has been said that "great men, like great mountains, stand alone, with the valley of ancestry on the one side and the gulf of posterity on the other." This towering character, however, did not stand alone, for the foot-hills of his ancestry were of decided magnitude, prophetic of a genius destined to become one of the greatest benefactors of the human race. His ancestry for three generations commingled the best Scotch and Irish blood, coursing the arteries of men and women of strong bodies and strong characters—characters emphasized, energized and vitalized on historic battle-fields with red-skins, red-coats, wild beasts and hardships of the primitive Virginia forests.

Figuratively speaking, this child was number nine in a family of eleven children. When 13 years of age his parents moved to Danville, Ky., a long, tedious and even perilous journey; a journey in itself well calculated to develop and toughen the fibers in our valiant hero.

At Danville he grow up to full physical manhood, tall, well proportioned, beautiful. What a wonderful advantage it is to grow up in the country, to commune with nature, to enjoy the beauties of green fields instead of paved streets; to gaze on great oaks and elms instead of steeples and chimneys; to see the radiant tints of the morning dawn and the beauties of the setting sun; where the mind can grow commensurate with a healthy body; where one can develop and cultivate the greatest of faculties—that of thinking, without having the continuity of thought interrupted by the rattling of electric cars, the rumbling of omnibuses or the shrieking whistle of steam engines; where one can see in reality what art galleries only imitate, and while enraptured with the works of nature and the created, become filled with the realization of the existence of a Creator. And then, too, to be reared under the influence of such parents as our hero had. The lasting impressions of our lives are received beneath the cloudless sky of childhood, while our guiding star is the approving twinkle of the paternal eye, the chief luminary of our pathway the vitalizing sunshine of a mother's countenance, and every footstep guided by the subduing influence of a mother's love.

After obtaining his literary education at Georgetown, Ky., he went as a student of medicine to Dr. Humphries, in Stanton, Va. History tells us little of this Dr. Humphries except that he was educated at the University of Edinburgh, but surely he, too, was a man of great intellectual endowment. Dr. Samuel Brown, of Kentucky, and Dr. Hosack, of New York, were also his pupils and arrived at a great distinction as practitioners and teachers of medicine and surgery. In 1793–94 our hero attended lectures at the University of Edinburgh. Pause for a moment, and think of a young American so ambitious that the entire faculty of this great university could not satiate his thirst for knowledge, for going outside he employed Dr. John Bell, a great character, so enraptured in teaching anatomy and surgery that he filled his pupils to overflowing with professional zeal. In 1795 our hero returned to America and began the practice of medicine at Danville, Ky., where he soon had a large clientage, often riding 50 and 100 miles on horseback. He faced dangers from storm and flood, in clouds and darkness at night, at times becoming lost in the dense forest. He was actuated by the higher principles of his profession; he feared neither man nor devil; he knew no fear except the fear of doing wrong. The degree of his happiness was determined by the magnitude of his undertaking.

On Dec. 13, 1809, he was called to see a Mrs. Crawford whose attending physician had thought her pregnant, although he knew she had gone beyond the usual time. Dr. Eastman being a thorough master of all that was known of that highest department of our art, namely, diagnosis, declared that she had an ovarian tumor and at once suggested its removal. Had he deceived her by an untruth, or kept back from her the whole truth, she would have known it, would have read it in his countenance, and would not have replied: "Doctor, I am willing and ready." But he stated to her that so far as he knew the operation had never been done—that it would be an experiment, therefore he could make no promise as to the outcome. He thus unlocked the bosom of confidence with the key of personal magnetism. By his manly presence and honest words, he planted a new hope in the heart of despair. This woman made the journey sixty miles on horseback on a bleak December day in compliance with the wisdom of this great and good man, that she might be near him so that in a critical moment he could with his own hand ward off the approaching danger. When it became known what he was about to undertake, he found a mob was gathering about his house. He learned that if the patient recovered it would be well with him, but if she died from the operation he was to be at the mercy of a merciless mob. He offered up a prayer and proceeded with his task. This prayer in fervency and literary merit has rarely been equaled. Permit me to remark, greater heroism was never displayed by

[1] Delivered without manuscript.

man or woman. Martyrs burned at the stake could not escape the death if they would. This personification and crystallization of heroism could not abandon his principles, and escape the danger if he would. More than that, genuine heroism must be delicate, must be premeditated, must be actuated by a pure a high, a holy and beneficent motive. It was not a maddening pseudo heroism stirred up by the rattle of drum and shriek of fife on battle-fields, where man seeks to slay his fellow-man.

I insist that the heroism of Napoleon or Grant can never be compared to that of this cool, calculating, thinking man. I repeat, the heroism that seeks to destroy human lives is incomparable with that which seeks to save a human life and establish principles which shall not only save one life, but which shall continue to save human lives throughout all coming ages. The operation was completed, and during nearly a century has not been improved upon; his technique was almost identical with what we have to-day. The substitution of a gauze for the drainage tube still more nearly approaches the ligatures which he allowed to hang out the lower angle of the wound—the best of capillary drainage. Mrs. Crawford lived thirty years. Our hero made the operation thirteen times with eight recoveries, and at 60 years of age returned from visiting a patient, laid down his instruments for the last time and secured that rest which he never could enjoy while a call to the bedside of a suffering patient was pending. Surely such a life of unselfish devotion to the cause of humanity would make him a fit companion for the gods.

"To such a life there is no death;
What seems so, is transition.
His life, his mortal breath,
Was but a suburb of the life elysian
Whose portals we call death."

He was an honest man, honest to his patients, honest to his God, and therefore honest to himself. He was a great man with a large head, a large capacity for thinking, and a large, a true and a loving heart—essential qualifications for a great surgeon.

He was a wise man. With inborn wisdom he accumulated and applied knowledge. He was a brave man. No truer heroism has or ever will be recorded on the immortal pages of never-ending history. He was a humane man. He owned slaves, occasionally bought one to unite families—but never sold one. He did not approve of traffic in human blood.

He was a handsome man.

"Beautiful eyes are those that show,
Like crystal panes where heart-fires glow,
Beautiful thoughts that dwell below.
Beautiful lips are those whose words
Spring from the heart like songs of birds—
And yet whose utterance prudence girds.
Beautiful hands are those that do
Work that is noble and brave and true,
Moment by moment the long day through."

His was a beautiful life.

"Beautiful lives are those that bless,
Some silent river of happiness,
Whose secret fountains few can guess."

Virginia is justly proud of her statesmen, of her orators and her soldiers, "but shall not the achievements of her statesmen succumb, at last, to the pitiless logic of events? Shall not the voice of her orators grow fainter with coming ages? Shall not the victories of her soldiers be found at last only in the libraries of students of military campaigns, while the fame of this village surgeon, like the ever-widening waves of the inviolate sea, shall be wafted to the utmost shores of time, hailed alike by all nations in all ages for having lessened the burden and prolonged the span of human life." A thousand years hence, if a student of medicine shall ask who first did ovariotomy the answer will be prompt and unequivocal. As a result of this self-sacrificing life and marvelous achievements there goes forth a benediction to every home in the civilized world; from every hearthstone in Christendom there returns a blessing to the memory and the resting-place of Ephraim McDowell. All honor to this honest, great, wise, heroic, good, kind, gracious, loving and lovable man!

ORIGINAL ARTICLES.

A CASE OF CONGENITAL MUCOUS POLYPUS OF THE NOSE—WITH REMARKS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY DUNBAR ROY, M.D.

PROFESSOR OF OPHTHALMOLOGY AND OTOLOGY IN SOUTHERN MEDICAL COLLEGE, ATLANTA, GA.

It is not my intention in this short article to go into the minute discussion of that pathologic condition known as mucous polypi of the nasal cavities, nor to adduce any new and original method for their eradication which has not already been brought before the profession at large; but with a few prefatory remarks I wish to report the history of a case of congenital nasal mucous polypus which is of sufficient rarity to render its report not entirely inappropriate for this Section. The subject of nasal polypi is an old one and perhaps the first morbid condition of these cavities which was undertaken to be rectified by the surgeon and physician alike, since its presence was perhaps the easiest recognized of all diseased states of the nasal cavities. Our medical periodicals and society reports have for the last few years teemed with articles upon the etiology and best method of treating polypi until, at the present date, one wonders that any physician should slip into the error of even mentioning the subject unless he has, by original research, some new light to throw upon certain points as yet disputed. The two points which have especially vexed rhinologists and upon which there seems to be the greatest diversity of opinion, are the etiology of these mucous growths or outgrowths and the best and most satisfactory method of treatment.

As to the etiology, there is by no means a unanimity of opinion, but, in fact, as would naturally be expected, each rhinologist holds his own views upon the subject. The only point upon which they all agree is in recognizing this pathologic condition as one of adult or advanced life, and a condition of extreme rarity in the very young. To the rhinologist who has had any extended experience in the treatment of nasal polypi and has been a close observer, the views of Woakes of London, or at least a modified form of them, must certainly present the clearest and most satisfactory explanation in regard to the etiology. M. McKenzie admits that the etiology is unknown, while Sajous says that it is due to a chronic inflammation of the Schneiderian membrane. But why is it that the same character of inflammation, certainly as far as we can observe, produces polypi in one subject and not in another? I, myself, am a strong believer in hereditary predisposition, especially

as I have seen this morbid condition in different members of the same family, and every rhinologist is familiar with the characteristic nasal expression in patients afflicted with nasal polypi, which is by no means always a *propter hoc*.

Nor are all writers agreed as to what is the usual condition of the mucous membrane lining the affected side, since some hold that it is always hypertrophied while yet others that atrophy exists.

Woakes' theory of explanation as I understand it, is this: that long standing chronic catarrh of the hypertrophic variety causes the middle turbinate to return to its embryonic condition, that is, it becomes cleft in two portions running antero-posteriorly. Between this cleft, the blood supply not being sufficient, true mucous membrane is not formed, but in its stead a myxomatous structure accumulates, which by gradual enlargement increases the space thus formed and which in its final development is a true mucous polypus. These views of Woakes upon "necrosing ethmoiditis," a most unfortunate term, have been severely criticised by some throughout the medical world, and especially has it been done in London by Walsham, Hill and Lennox Browne, a full discussion of which was published in the *Journal of Laryngology* of August, 1891. As every one knows, Browne has long antagonized these views and his ideas upon the subject are, according to him, in accord with the majority of rhinologists, believing that when such a condition of affairs exists as Woakes describes, it is accidental rather than universal. He contends that in such cases the evidences of this necrosing condition are absent, both histologically and clinically, viz: absence of odor, the sequestræ of necrosed bone and other pathognomonic symptoms. Woakes, on the other hand, replies that he did not mean that necrosis was present in every case, but that the pathologic condition was such as to lead to it were the parts not radically treated. Whether we agree fully with these views or not, I believe every rhinologist must admit the importance played by degenerative changes in the ethmoid, especially the middle turbinate, in the production of polypi, chronic discharges, etc.

Dr. W. E. Casselberry of Chicago, in a paper read before the American Laryngological Association in May last, has discussed the question of etiology and treatment in a most admirable manner, and has instituted a classification which accords entirely with my own clinical views. It is a paper well worthy of preservation and one that should be in the hands of every rhinologist.

While nasal polypi in the adult is a common occurrence and their pathology has been minutely studied, the same condition in children is extremely rare, and therefore by no means so clearly understood. M. McKenzie, with even his large experience, is reported to have said that he never saw but one case in a subject under 16 years of age. The rarity of these cases has been the ground for their being reported in the medical literature. S. Hopmann of Paris, has reported that he found nasal polypi in 8 children out of a total of 246 such cases operated upon. Natier, in the *Annales de la Polyclinique* of July, 1891, has published an elaborate study of mucous polypi in children up to the age of 15. He compares the general opinion as to the extreme rarity of these growths during the first years of life with that of Hopmann who considers them sufficiently frequent before the fifteenth year to represent a proportion of 7 per cent. Natier was not able to find a single instance in 1,200 cases of nasal trouble carefully examined at his clinic, including a large number of children as patients, while, at his request, a close examination of the records of Moure's clinic recorded only 5 cases of mucous polypi in children among 10,520 cases. He therefore concludes that Hopmann must have met with a series of cases as a coincidence, or that the climate of the region in which he lives is particularly favorable to the growth of these neoplasms. The same author, in the *Paris Medicale* of February, 1892, reports a case of congenital mucous polypus, and in looking up the literature he has found of congenital polypi, in addition to his own, three cases of polypi in children under 5 years of age, ten cases in children between the ages of 5 and 10 years, and sixteen between the ages of 10 and 15. LeRoy of Paris, has reported a case of congenital polypus by finding that an infant had much difficulty in taking the breast, and on examination a polypus was found in the left nasal fossa. Cases of polypi removed from children under the age of 7, have been reported by P. Heymann and Michael of Hamburg.

From these few prefatory remarks, one may judge of the rarity of such cases of congenital polypi, and of those occurring in children under the age of 15. I believe, however, that if a thorough examination was made in cases of children suffering with a chronic discharge from, or an obstruction in, the nasal cavities there would be a greater number of such cases reported than has heretofore been the case.

The case to which I now wish to call your attention presented some striking features in the cavity from which the growth was removed, and which I shall speak of in detailing the history.

In one of my routine visits to the Home for the Friendless, the matron brought in a young girl 14 years of age, who complained of her inability to breathe through the left side of the nose. On inquiry the following history was elicited:

Her father was living, but mother dead. According to patient's statement she has never been able to breathe through the left side of her nose. At the age of 5 she was chloroformed three times when growths were removed from the left side of the nose, and in the last six years she has been operated on three times, having had large pieces removed at each sitting—with the result, however, of never affording her breathing space on that side. At present she says her nose feels about as well as it ever did. She complains of marked asthenopia and photophobia of the eyes. Is unable to read for any length of time. Suffers with headaches. Otherwise the patient is well nourished and is of a large and healthy frame.

Upon examination, I found one immense mucous polypus which filled the whole left nasal cavity, from the anterior meatus back into the post-nasal space. With a Jarvis snare, I removed what I thought a good portion of the growth, but to my surprise on again inspecting the parts, no impression seemed to have been made upon its size. As my surroundings for operating were very unsatisfactory, I instructed the matron to bring the young girl to my office. In two weeks time I operated again, removing two pieces about the size of the first, and on my third attempt succeeded in invaginating the greater portion of the polyp with the wire loop, and in this manner finally removed the growth *in toto*. Strange to say, there was no bleeding whatever, and on inspecting the cav-

ity I found the following conditions: the mucous membrane was atrophic throughout, and there appeared nothing but a large, open, glistening cavity. The inferior turbinate was scarcely discernible as such, while the middle turbinate showed but the slightest rudimentary shelf. The whole outer wall of the cavity showed one large depression in which the polypus had evidently lain. The septum at its lower portion was perfectly straight while the upper part of it was very much deflected toward the right, showing the evidences of mechanical pressure. No secretion whatever was present. High up beneath the rudimentary portion of the middle turbinate, the growth had its origin from a space not over one-quarter of an inch in length. No distinct cleaving of the turbinate was recognizable. The point of origin could be thoroughly cauterized so that I fear no prospects of a return, as now evidenced after several months.

From the history of the case and the changes found in the nasal cavity after the removal of the growth, there is no doubt as to its being congenital in origin. The important features about the case were the destructive changes which it produced through pressure upon both sides of the cavity. The right side showed no marked pathologic changes save a distinct hypertrophy of the inferior turbinate, which was so much in contrast to the atrophy existing in the left nasal cavity.

Dr. Jarvis in the *Journal of Respiratory Organs*, April, 1890, in an article upon nasal polypi, insists upon the importance of the superior deflection of the septum as a cause for the growth of polypi and the necessity for its correction in order to effect a cure. He, therefore, explains the etiology of congenital and hereditary cases by attributing them as due to this herditary septum.

Cordone of Italy, has reported a case of congenital polypus where he found the same superior deflection of the septum as referred to by Jarvis, and which thus supports the views of the latter.

In my own case this deflection was a very noticeable feature; whether it was one of the causes or only a result of the polypus I am unable to say, but my firm opinion is that it was the latter, since in the point of origin I could see no relationship between the two.

In regard to the treatment of polypi I have nothing new to offer, only that I wish to add my testimony to the success of a treatment recommended by Dr. E. H. Griffin of New York, and that is the spraying of the affected nasal cavity every night and morning for a year with either hamamelis or pure alcohol. Since the majority of polypi spring from the sulcus, up and behind the middle turbinate, I have found it best to saturate a piece of cotton with pure alcohol, pack it firmly in the sulcus and allow it to remain for half an hour at the time. Such mild and prolonged treatment may be criticised by my more radical colleagues, but in many patients who are so averse to any operative measures in their nasal cavities, I have found this mode of procedure of inestimable value.

DISCUSSION.

DR. PRICE BROWN, Toronto—Has only seen one case of congenital nasal polypus. This occurred in a child aged 2½ years. The polypus was pedunculated and presented in the naso-pharynx, being visible orally. Under chloroform I removed it digitally, scratching off the polypus from this vault by the finger nail.

DR. S. K. MERRICK, Baltimore—Touching the question of congenital polypi, I have never seen a case which I knew to be congenital, but I have had at least two cases under 2 years of age, when a history of obstruction had existed from birth, or shortly after, and I am willing to accept as an established fact that we do have congenital polypi. As to the etiology, I believe in many cases imperfect drainage, due to deflection or spurs of the septum is a contributing cause, and as to the question of site of origin being invariably from the turbinates, I am prepared to disprove. I have a specimen removed from the nose of a man 48 years old, where a large spur, having a large mucous polyp attached, is suspended in alcohol, showing the polypus growing from that portion of the septum.

DR. CASSELBERRY—Some years ago I reported the occurrence of a nasal polypus in a girl aged 9 years, who had been previously affected for several years. It must have originated at a very early age, although I do not think it was congenital. At that time I expressed an opinion that nasal polypus in young children was not so rare as had been generally supposed. Concerning the etiology, Dr. Jonathan Wright concludes from microscopic studies that they are inflammatory growths occurring in the course of chronic rhinitis, although why the minority only of cases of chronic rhinitis should suffer from this complication and the majority escape, is not yet known. I have elsewhere pointed out that deflection or excrescence of the septum or other conditions which cause unusual narrowing or stenosis of the nostrils by impairing the natural drainage and causing the accumulation of decomposing muco-purulent material, might influence the transformation of the ordinary hypertrophic rhinitis into the myxomatous type. All degrees of this transformation are observed clinically, especially on the middle turbinal, from that which is best described as a polypoid degeneration of the hypertrophied turbinal to the typical pedunculated polypus which may occasionally be found attached to the middle turbinal itself. The more common point of attachment for polypus, however, is in the middle meatus, high up beneath the middle turbinal, growing from and projecting through the hiatus semilunaris from the immediate vicinity of the ethmoid cells, and in these cases the underlying condition or cause is an ethmoiditis, not necessarily of a "necrosing" type, but that which is better termed a myxomatous ethmoiditis.

The treatment should consist of as thorough extirpation as possible by the cold wire snare, followed by curetting of the base. The galvano-cautery experience has been shown to be objectionable, on account of the liability to the formation of adhesions when insinuated into crevices. In certain obstinate cases, in order to gain access to the seat of attachment in the middle meatus, I have resected the anterior end of the middle turbinal.

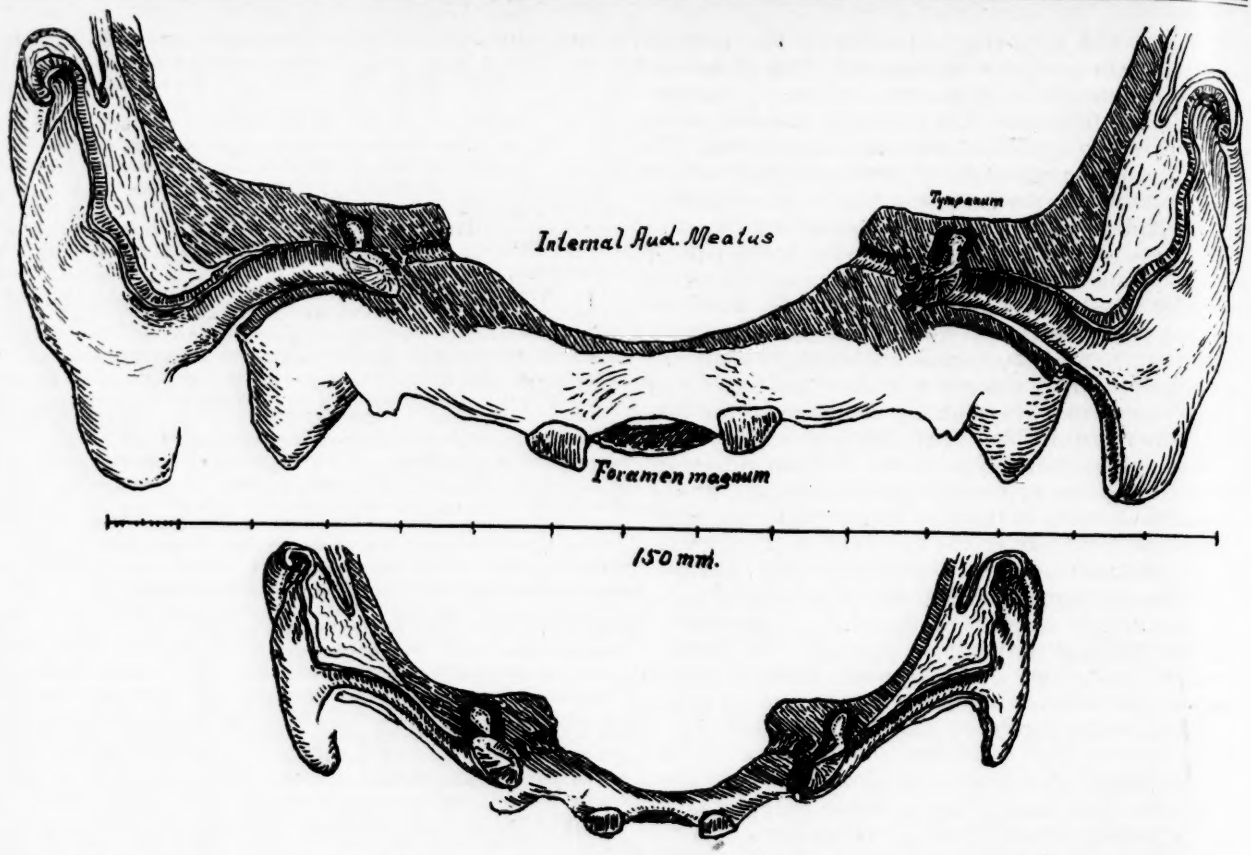
THE IMPORTANCE OF AURAL ANATOMY IN ROUTINE CLINICAL WORK.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, held at Baltimore, Md., May 7-10, 1895.

BY B. ALEX. RANDALL, M.A., M.D.
PHILADELPHIA.

That the aural surgeon must have the topography of the ear and the surroundings clear in his mind and ready at his finger ends, when operating on the mastoid or still more within the tympanum, is evident to all. He must be thus posted, or wholly belie his status as a specialist. Yet it is no less true that the practitioner who would well treat, topically, the routine cases, still more attempt paracentesis as most of the text-books advise, must know the variations in the configuration of the external auditory canal, the size, depth and inclination of the drum-head and the structures which lie beyond it within easy reach of damage by his manipulations. Unfortunately, much experience in post-graduate teaching shows that the majority of men of some otologic experience reveal serious defects in this direction; and do some very bungling work, however posted in the theory; not so much from inexpertness, as because of erroneous anatomic impressions.

For this, many text-books of surgery, anatomy and even of otology are distinctly at fault. Misstate-



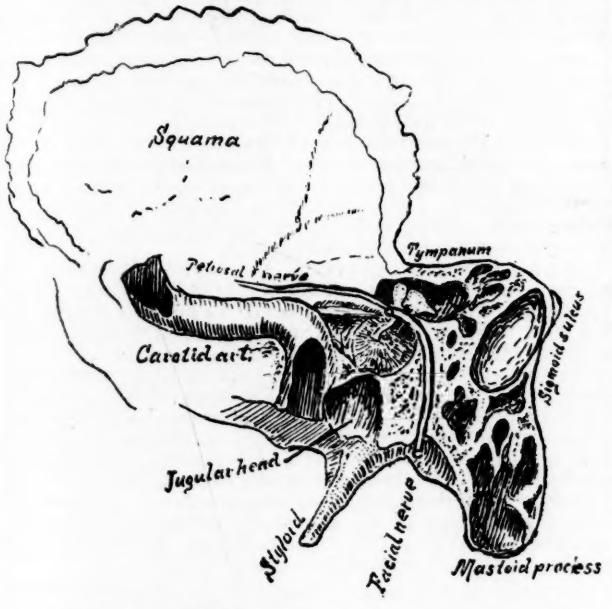
ments abound and pass current without the brief examination needed to correct them. Hard and fast statements are made as to the most variable points, alternating with vague and inadequate data on matters calling for more explicit description. Few even of the aural treatises deal adequately with the external meatus in its individual variations and its development from the infant to the adult form. I find a common misapprehension, that because the drum-head of the infant is on the plane of the skull surface, the auditory canal must be shallow. The astonishment with which physicians see a probe passed in an inch and a quarter, before touching the tympanic membrane of an infant is almost universal. The usual text-book statement that the drum-head is much more horizontal in infant life than later, is accepted, of course; and every demonstration of an identical position with that of the adult is generally looked on as an exception and anomaly. That the drum-head, ossicles and labyrinth are full-sized before birth, surpasses the credible to most medical men, who naturally support common analogy by text-book misstatements.

The variable direction of the auditory canal counts as much as its width and straightness in the question of what should be visible at its bottom; but I know of no statistical measurements in this regard except those brought by me before the American Otological Society last year. This is of extreme importance to the operator; but it greatly concerns every practitioner who undertakes to cleanse an ear. Supposing a bulging inflamed drum-head offers itself with exceptional clearness to the view of the practitioner and demands incision, how few are acquainted with what lies within it, all too easily damaged by anything but the most precise operation. The inclination of the drum-head to the axis of the canal is generally fairly stated in the books; yet few practitioners adequately appreciate how much farther from the surface the anterior part of the membrane is than the upper posterior. In the narrow canal, little use can be made of parallax in estimating the distance of points, so one must generally depend on his anatomic knowledge of the position of known structures and, as to the unknown, make tentative use of the probe.

The great importance of this combined employment of sight and touch in learning practical aural anatomy, inclines me to strongly advocate the use of the cotton carrier in cleansing, since it may be as gentle as any other means, while far more instructive and, at times, more efficient. By such practice the beginner can speedily learn the relations and obtain a delicate confident touch, which will serve him equally in successful routine work and in the most intricate operative procedures. Bearing these drum-head details in mind, incision of the drum-head can doubtless be safely done by any one of fair skill; unless he undertakes it as a stab of the chosen point, because so taught or from the unsteadiness of the patient. Then he always endangers the structures beyond—the stapes, chorda and possibly the facial nerve, if operating up and back, the mucous membrane of the promontory below and the head of the jugular in the floor of the tympanum. The reported cases where the jugular has been thus opened are probably far fewer than the occurrences of the accident, for it must not be forgotten that the thinnest of bone, often dehiscent, alone intervenes. As to the facial nerve, its bony canal is not infrequently incomplete just above and behind the oval window; and aside from injury as the result of operation or even of mere probing or cleansing with cotton, this anatomic condition should not be forgotten in its rela-

tion to Bell's palsy. That authority to the contrary notwithstanding, I am sure that the large majority of cases of acute facial paralysis are due to inflammatory affection of the nerve and its sheath, not at the stylo-mastoid exit, but as it passes through the tympanum. The tympanic inflammation is generally transient and sometimes painless; but prompt study will rarely fail to note the evidences of it. The bearing of this upon prognosis and treatment is evident.

One farther instance may be cited—the anatomy of the Eustachian tube in its relations to the physiology of the ear and the therapeutic matter of inflation. Anatomists and physiologists have contended as to whether the tube is normally in a closed condition. Section shows its lumen reduced to a mere cleft by contact of the anterior and posterior walls; but Rüdinger has pointed out the open "safety tube" above, in the hollow of the hook-cartilage. Clear as this is in the middle portion of the tube, it is not present throughout its length; and we are normally dependent upon the dilating action of the so-called palate muscles (of which the outer portion of the tensor palati is at times purely a dilator tubæ) to render it patulous. Of this, Politzer has furnished us a nice demonstration which is also a most useful test of the normality of the Eustachian tubes. If the sounding tuning-fork is held before the nose, it will be faintly heard until the act of swallowing calls into action the tubal muscles, when it will be momentarily much more audible. Without any needless inflation, we can thus at once test not only their physiologic condition, as could be only inferred from their ready penetration by the injected air, but can note even minor differences in the freedom on the two sides. Another demonstration of the same normal closure of the tubes will be found in the contrast with the effort to exhaust the tympanum by a suction effort, with the completeness of the success of the Toynbee or negative Valsalva procedure, of swallowing with the nose closed.



Dear Doctor:—Please direct the attention of your friends to our JOURNAL. We will be pleased to send sample copies to any names you may suggest.

RECURRING OR HABITUAL EPISTAXIS, WITH A CONSIDERATION OF THIRTY-SEVEN CASES.

Read in the Section on Laryngology and Otology at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7–10, 1895.

BY E. L. VANSANT, M.D.

ADJUNCT PROFESSOR OF DISEASES OF THE THROAT AND NOSE, PHILADELPHIA POLYCLINIC; SURGEON TO THE THROAT, NOSE AND EAR DEPARTMENT OF THE HOWARD HOSPITAL; ONE OF THE PHYSICIANS TO THE PHILADELPHIA HOSPITAL.
PHILADELPHIA.

The term recurring or habitual epistaxis designates a class of cases where nasal hemorrhage of varied degrees of severity recurs at intervals, during a greater or less period of time. The history given in some of the cases is that of a slight hemorrhage; perhaps only sufficient to lightly stain the handkerchief after blowing or picking the nose. Such slight oozing may recur several times daily or at comparatively long intervals. In other cases, the history is that of a profuse hemorrhage lasting several minutes or longer, which may occur after blowing the nose, or follow any slight mental or physical excitement. The frequency of the attacks may vary considerably.

Among the general causes of recurring epistaxis are:

1. Diseases affecting the blood vessels or associated with alteration of the constituent parts of the blood, as in scorbutus, purpura hemorrhagica, simple and pernicious anemia, plethora, hemophilia, malaria, and exceptionally in septic diseases such as pyemia, septicemia, etc.

2. Certain acute diseases, such as typhoid and relapsing fever, and occasionally in pneumonia, diphtheria, etc.

3. Diseases producing local or general vascular congestion, such as valvular disease of the heart, pulmonary affection, cirrhosis of the liver, chronic nephritis, amyloid degeneration and mediastinal tumors.

4. It may be the expression of a vicarious menstruation, or,

5. May accompany the course of a pregnancy.

Among the local causes may be assigned:

1. Tumors such as fibroma, carcinoma and sarcoma, particularly angiosarcoma, fibro and myxosarcoma.

2. Varicose enlargement of the veins, particularly on the anterior portion of the septum.

3. Perforating ulcer of the septum.

4. Trauma.

5. Local ulcerations caused by syphilis, tuberculosis and lupus, and, finally,

6. Deformity of the septum, associated with erosion or ulceration of the mucous membrane of the septum.

The most frequent predisposing cause is some slight deformity of the septum affecting its anterior portion. The abnormality may be but a small or moderate sized enchondroma or exostosis, or it may be a slight deflection of the septum, the seat of some former fracture with marked thickening of the convexity.

Accumulations of dust and mucus occur on the apex and anterior surfaces of the projecting portion, and as such accumulation is very difficult of removal by blowing the nose, the patient will endeavor to obtain relief by picking it away with the finger or the handkerchief; in so doing slight erosion of the mucous membrane occurs. This may excite a slight hemorrhage, which in turn forms a small crust, and the process of removal and bleeding is continued. In some instances the process goes no further, the patient having a slight hemorrhage only when the nose

is picked. In other cases the ulceration gradually extends deeper into the tissues and the hemorrhages are more profuse, often produced by simply blowing the nose or any mental or physical excitement.

The ulcerations are most liable to occur when the deformity of the septum is moderate, whereas in marked deformity, producing great stenosis, the draft of air is so cut off that very little dust is drawn into the obstructed nostril and fewer crusts are formed.

In thirty-seven cases of habitual epistaxis occurring in my practice recently, I found that twenty-eight were due to slight deformity of the anterior portion of the septum as just described, with ulceration of the projecting or convex side of the deformity. Three were due to deviation of the septum with ulceration on the depressed or concave side. Two were due to ulcerations associated with atrophic rhinitis. One was a vicarious menstruation. Three occurred in typhoid fever.

The severity and duration of the affection in the observed cases varied greatly. The majority of the patients were not aware of any existing nasal obstruction, nor was the deformity sufficient to produce marked stenosis. In quite a number, various abnormalities producing catarrhal conditions were present, in addition to the septum deformity.

The observation of ulceration of the septum as a cause of epistaxis is by no means a new one. Among the articles calling attention to it may be mentioned those by G. M. Lefferts,[1] B. Robinson,[2] Chiari[3] and Baumgarten.[4] The more recent text-books also recognize its etiologic importance. The presence of slight septal deformity has, however, not been so generally recognized; nor has the importance of correcting such deformity in order to obtain permanent relief been well developed. Again, the general profession has not fully appreciated the fact of this being so frequent a cause of bleeding. Perhaps the trivial nature of the lesion in some cases, may be the reason that more importance has not been attached to it. In a large number of the cases that came under my observation the local lesion had not been previously recognized although they had long been under medical care. These cases were supposed to have some latent cardiac or vasomotor affection, but local examination revealed the true source of the hemorrhage.

The following cases from my records will illustrate some of these observations:

Case 1.—Mrs. A. B., age 30 years, consulted me in January, 1892, with a history of repeated slight nasal hemorrhage. She stated that in the left nostril a small scab frequently formed which she could only remove by hard blowing or picking. The removal of the scab always caused a slight hemorrhage that lasted but a few minutes. This condition had continued for the past four years and was better during the summer and worse during the winter. The nose always felt free, except during the cold weather when catarrhal symptoms developed. Examination showed a slight deflection to the right of the anterior portion of the septum. Upon the apex of the deflection was a small ulcer covered with a crust; upon removing this a slight hemorrhage occurred. With the exception of a moderate hypertrophy of the lower turbinated body of the opposite side, the nostrils were fairly normal. The ulceration was readily healed by treatment, and the hemorrhage promptly ceased. Operation for removal of the slight obstruction was, however, refused. About three months later the patient returned with renewed ulceration and hemorrhages. She confessed to having recommenced picking the nose. A cure was again effected and operation again refused. Since then I have had the same experience with her at intervals. If this patient could refrain from picking the nose or have the septal projection removed there would be no further epistaxis.

Case 2.—Mr. C. D., age 19 years, college student, gave a history of recurring epistaxis for a number of years, in fact as far back as he could remember. The hemorrhages were usually quite severe and at times difficult to check. They usually followed blowing the nose or any unusual physical exercise such as dancing, playing tennis or ball, as well as mental or physical strain. The bleeding would sometimes occur several times daily; again intervals of weeks would be between the attacks. The patient since early childhood had been under the professional attention of a very experienced physician who looked upon the epistaxis as the local expression of some undeveloped cardiac lesion, and who informed the patient that the bleeding should be looked upon as a safety valve. The patient had therefore been subjected every six months to a careful examination of the heart and lungs. I first saw this patient in January, 1893; he was tall, thin and anemic. He declared his nose felt free and unobstructed, that he never suffered from catarrhal symptoms, in fact, if it were not for the epistaxis would feel in the best of health. On examination, a deviation to the left of the anterior portion of the septum was seen. The deviation was quite angular, projecting about a quarter of an inch into the left nostril. Over the projection the membrane was adherent, pale and scarred. At the base of the projection the blood vessels were dilated. On its anterior surface was found a round ulcer about one-quarter of an inch in diameter covered by a crust. Upon removal of this crust, bleeding occurred and the ulcer was seen to extend into the submucous tissue. With the exception of a depression of the septum on the right, corresponding to the projection to the left, the nose and throat were in excellent condition. Examination of the lungs, heart and liver, as well as the urine, showed absolutely normal conditions. Upon questioning the patient confessed to occasionally picking the nose but declared himself unable to always abstain from the habit.

Operation for the removal of the septal obstruction was advised and carried out in January, 1893. In about a week the patient was allowed to return to his home in a neighboring city. Reports received from time to time showed subsequent absolute freedom from epistaxis, although the patient now indulged in all the sports of a college student. A note from my case-book dated February, 1894, says that he has been entirely free from nasal hemorrhage since the operation. There has been great improvement in his general health with considerable body development during the year. About this date, while sparring, the patient received a violent blow upon the nose. This caused renewed hemorrhages with some return of the septal deformity which, however, was easily corrected, and a recent report states that there has been entire relief from all epistaxis.

In most of the cases observed the epistaxis was of rather a mild degree, but the following cases will illustrate how very severe the affection may become:

Case 3.—Mr. P. K., age 50 years, who consulted me in March, 1894, stated that since boyhood, he had had on an average three nasal hemorrhages daily. These always were very severe, and lasted from five to thirty minutes. He had noticed that the bleeding usually followed picking or blowing the nose. Of late years any mental or physical excitement would also cause it. This patient was very anemic, and suffered from all the symptoms of that condition. He stated that he had always been considered a "bleeder." Upon examination the septum was found to have an up and down S-shaped deflection extending quite forward, with considerable thickening at the base. On the anterior surface of the deflection were several small ulcers in each nostril. The blood vessels of the mucous membrane covering the septum were varicose. The nasal and pharyngeal mucous membrane appeared pale and sodden, with considerable secretion of mucus. The posterior portion of each lower turbinated body was hypertrophied. This patient acknowledged that he had been in the habit of picking his nose all his life. When requested, he gave a demonstration which presented a vivid picture of the finger-nail scratching the septum. Operation was recommended, but refused. There was no difficulty in healing the ulcers, and causing the epistaxis to cease. The patient was dismissed with a caution about picking the nose.

Case 4.—Mrs. E. F., age 38 years seen by me in December, 1894, gave a history of having had former nasal hemorrhages

[1] G. M. Lefferts, Medical News, 1882, vol. XL, page 100.
[2] B. Robinson, New York Medical Journal, Sept. 24, 1887.
[3] Wiener Medicin Zeitung.
[4] Treatment of Epistaxis, Vienna, 1886.

of a severe type and frequent occurrence, which condition had lasted fifteen years, and then about five years ago had ceased. According to her recollection the bleeding was usually from the right nostril. About three months before consulting me the epistaxis returned, this time apparently from both nostrils. The hemorrhages, however, were not so severe or frequent as formerly. Examination showed an S-shaped deviation of the septum, running antero-posteriorly. The anterior projection of the S was well forward, to the right, while the posterior projection extended into the left nostril and further back. Through the anterior curve a round perforation of about three-eighths of an inch in diameter had occurred. The presenting surface of the posterior projection to the left, was the seat of an ulcer, covered with a scab, the removal of which at once brought on a hemorrhage. There was considerable hypertrophy of the lower turbinated bodies, as well as advanced granular pharyngitis.

The patient confessed to the nose picking habit. The hemorrhages ceased upon healing the ulcers, and stopping her bad habits. In this case, I have no doubt but that the perforation was due to chronic ulceration of the septum, and that the temporary cessation of the hemorrhages came when the first ulcer had entirely perforated. The renewed hemorrhages were due to the ulceration on the left side.

Treatment for Control of Hemorrhage.—As the point of bleeding is usually at the anterior portion of the septum, firm and continued pressure of the nostrils with the fingers or a clamp may be quite sufficient to secure cessation. The head of the patient at the same time should be held erect or slightly forward, the patient sitting in a chair or partly reclining on a lounge. If such pressure is not successful, small pieces of ice thrust into the bleeding nostril, and applied to the corresponding side of the nose, or cold applied to the spine, aid in checking the hemorrhage. Again, full strength peroxid of hydrogen dropped into the nostril, or a plug of cotton saturated with the same and inserted, will usually form a clot sufficiently strong to cheek the bleeding. Alum, 30 grains to the ounce of cold water, and sniffed up the nose, or applied by means of an atomizer, dropper, or on pledgets of cotton can be recommended. Cocain in 4 per solution used in the same manner, and quickly followed by a 3 to 6 per cent. freshly made solution of antipyrin, at times is quite successful, although care should be taken lest the depressing effect of the drugs add to any existing prostration. If the patient seeks medical assistance, the bleeding point should be sought for, and is usually very easily found. It may then be touched with copper sulphate or silver nitrate. These may be used in solid form or in solutions. A 5 to 10 per cent. solution of silver nitrate applied on a small swab to the bleeding surface and held in position is usually quite effective. At times it may be necessary to resort to the cautery, using the galvano-cautery, or heating the end of a probe in the flame and touching the bleeding point. Such cauterization is quite successful, but renewed hemorrhage may occur upon separation of the slough. At times it may be necessary to plug the nostrils. Certain internal remedies may be used in addition to the local treatment. Of these remedies ergot is the best, and may be given in repeated small doses, by the mouth or hypodermically. Gallic and tannic acid, acetate of lead, sulphuric acid as well as the astringent preparations of iron may also aid in checking the hemorrhages.

Treatment to Prevent Recurrence.—The patient should be strongly urged to avoid picking the nose, and to use warm washes and oils to remove crusts and accumulations of dust. The surface of the ulcer should be coated over by applying copper sulphate, or silver nitrate, or a varnish of balsam of tolu dissolved in ether. The local use of the ammoniated mercury ointment, one-half strength, or carbolic acid (2 to 5 per cent.) in albolene or cosmoline, and insufflations of acetanilid, or iodoform, with or without morphia, can be recommended.

With such treatment I have usually had but slight difficulty in healing the ulcerations and preventing epistaxis. If the patient can abstain absolutely from picking the nose, this treatment may be all that is necessary. The desire to pick the nose clear from the deposits of crusts that will form around the septal deformity from time to time is, however, almost irresistible and in my experience the recurrence of the hemorrhage is almost invariable. It is therefore my usual custom to advise operative procedure for cure of the existing septal deformity and thus remove the offending cause. Removal of the projecting portion by means of the nasal saw, shave, gouge, etc, is usually all that is necessary. If the deviation is very marked, or if the hemorrhages come from the concavity of the deflection, it is advisable to fracture the septum and restore it to a normal position. The permanent relief from epistaxis that I have invariably succeeded in obtaining from the performance of these slight operations has led me to strongly recommend such procedure, even when the hemorrhage is slight and of comparatively infrequent occurrence.

1929 Chestnut Street.

DISCUSSION.

DR. J. E. H. NICHOLS, of New York—The percentage of cases showing chronic atrophic rhinitis seems to me rather small, as in my experience I have found it very large. We almost always find the atrophic condition present with deviations of the septum, because of the patency of this non-occluded nostril. Facial movements often cause hemorrhages by reason of the patient's effort to dislodge the crust formed in the vestibule and relieve himself of the feeling of tension caused by the dryness. I have seen hemorrhages start from this cause. A case under my observation at the Manhattan Eye and Ear Hospital exhibited this; she had been under treatment for two months at the Roosevelt Hospital for systematic causes, the atrophic condition being entirely overlooked. Treatment directed to softening the membrane relieved the hemorrhages, and she has had none for four months. I use largely an ointment called the unguentum nasalis, which is of 10 per cent. ichthyol and 5 per cent. eucalyptol in vaselin. This is used twice or three times a day.

DR. WOOLEN—said nose picking was not a habit, and a bismuth vaselin salve applied at night stimulated healthful secretions and ease of cleansing, and therefore, freedom of accumulation of irritating causes. After all, in controlling hemorrhage, the formation of clot is the matter of prime importance, and this is most admirably secured by insuflating dermatol, and inserting a film of cotton along the inferior meatus, as foundation for clot, dermatol being both an hemostatic and antiseptic.

DR. LOEB—I desire to call attention to perforation of the septum as a cause of recurring epistaxis. A patient came under my observation who presented a large perforation of the septum, and who suffered greatly from recurring nasal hemorrhages and from headache. Treatment bearing upon a coincident cardiac condition had been used for some time by a practitioner in the hope of cure. The use of nitrate of silver and oily spray entirely relieved her. Another case presented a very sharp projection which forced its way through the mucous membrane upon exertion and after piercing the nose. Removal of the spur entirely cured the condition.

DR. HOWARD S. STRAIGHT of Cleveland—The importance of very careful examination of the cartilaginous septum in all cases of frequently recurring nasal hemorrhage, has been impressed on me during the last year. I believe a slight ulceration of the mucous membrane, the cause of the hemorrhage, is often overlooked. The connection between a slight devia-

tion of the septum and the ulceration of the triangular cartilage has not impressed me as of so great importance as expressed in the paper. The writer has done the Section a favor in calling especial attention to this condition of affairs. Just what importance to attach in a nasal disease of any form, to a slight deviation of the septum, is a question in my mind. To assume that the deviation accounts for everything is easy; but just where to draw the line, the gods only know.

DR. VAN SANT, closing discussion—In regard to atrophic rhinitis being a frequent cause of habitual epistaxis, my experience does not agree with that of Dr. Nichol. It is true that the removal of an adherent crust in atrophic rhinitis may cause a few drops of blood, but this is so slight that I have not included such cases in my paper. Dr. Loeb considers perforation of the septum as a frequent cause. Perforations have usually been found to be preceded and caused by chronic ulceration; indeed, after the perforation occurs, the hemorrhages may cease, although ulceration around the margins of a perforation may continue the epistaxis. In such cases the best treatment is to heal the ulceration before perforation takes place. In regard to the use of salves, nitrate of silver, etc., used by Dr. Woolen, I have already said such means will usually heal the ulceration, and if the patient will absolutely abstain from picking the nose, the epistaxis may permanently cease. Unfortunately the temptation to remove crusts where there is a slight septal deformity is usually too great for the patient to resist. In replying to Dr. Straight, I think that operations for the removal of any existing deformity should be advised upon the ground of securing more permanent relief. If by operation we remove the projecting part from the septum, dust and crusts will not accumulate. The temptation to pick the nose is lessened and the septum is less liable to injury and subsequent ulceration.

REPORT OF A CASE OF CARIES OF THE SPHENOID BONE.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY EWING W. DAY, M.D.

PITTSBURG, PA.

That caries of the bones at the base of the skull is rare, is, I think, evident from the scarcity of literature on the subject. I have been able to find but scant reference to the subject from the resources at hand. For this reason I have ventured to come before you with the report of a single case of sphenoidal caries. Its course was chronic, lasting for two and a half years. Its beginning was obscure, for during the first year and a half, though seen by many of the most prominent members of our profession, no definite diagnosis was made, but the cause was assigned to malnutrition and neuralgia of malarial origin. That the bone itself was first involved seems to me certain, for when the membrane over the sphenoid broke down, the carious process was already fully established. The resulting cerebral abscess demonstrated at the post-mortem, probably dated from the time of the extreme and continuous headaches; and though the optic nerve was exposed to pressure, and pus was present in the cavity of the orbit, the eye, while frequently examined by Dr. Willetts, never gave evidence of it, on account of the drainage into the naso-pharynx through the sinuses in the bones.

In the spring of 1892 I was asked by the attending physicians, Drs. Emmerling and Anderson, to examine the patient, who in addition to a marked general debility and a train of obscure and indefinite symptoms, complained of soreness and pain in the pharyngeal vault.

The patient, aged 55 years, was a prominent physician of Western Pennsylvania, with the following history: in 1884, while operating on a patient supposed to be syphilitic, for hemorrhoids, he accidentally cut his finger, which, though promptly treated, was in the hurry incident to the operation, not cauterized. In a few days a severe case of blood poisoning resulted, but no symptoms of syphilitic infection were apparent. Later, the question arose as to whether there might not also have been a specific inoculation at this point. His recovery was slow and his physical condition was never as it had been before the attack.

Seven years after, in 1891, he showed signs of physical decline, although he continued his labors as lecturer and operator at the medical college and hospital but his efforts lacked that spontaneity so characteristic of him. He spent that spring and summer in Europe and suffered so severely from frontal headache, that often it was impossible for him to carry out his plans. At times he would weep like a child and was generally depressed and very homesick. The principal physical symptom of which he complained at this time was a feeling of extreme chilliness. After his return home he seemed to improve and went about his work with some of his old-time vigor, but that fall, symptoms of nasal rhinitis developed and he frequently sprayed his nose with a a hand atomizer. During the winter he had a severe attack of influenza which left him weaker than ever, with severe frontal headache and more aggravated nasal rhinitis. After this sickness his health always varied; malnutrition progressed and the nasal affection and frontal headache continued. At times he would complain of a lame hand, the result of the blood poisoning. During the spring of 1892 his debility frequently obliged him to rest and no amount of medicine and care altered his condition. He however, attended the meeting of the American Surgical Association at Boston, and consulted several physicians both there and in New York, whose diagnosis was neuralgia and malnutrition of a probable malarial origin. Later, he went to the Cheat Mountains in hopes that the outing would restore his health. As the warm weather approached, his work became more laborious to him and frequently he would remain in bed and refuse to see patients.

At this time, when I first saw him, an examination of the nose and naso-pharynx had not been made, medication being directed toward stimulating the appetite and overcoming the indigestion and nausea which had been prominent symptoms. At times he seemed feverish, but never to a marked degree. The pulse was always good. An examination showed the vault of the pharynx swollen and inflamed, the mucous membrane having a superficially eroded appearance, as if denuded of its epithelial layer. There was marked chronic rhinitis, with stenosis, from distension of the venous plexus of the lower turbinates. From this time on I saw the patient nearly every day up to the time of his death. A short time after this while making an examination, a small carious area at the spheno-vomer articulation was found, a piece of bone the size of a pea was removed with the adenoid forceps, and a diagnosis of caries of the sphenoid made.

A consultation of physicians now held, resulted in the conclusion that his ailment was syphilis contracted at the time of the blood poisoning, the possibility of tuberculosis being excluded by a microscopic examination of the discharges. He next took a trip East and consulted Drs. Janeway, Gouley, Bryant and several others, concerning the probability of syphilis, without receiving any definite opinion.

Mercurial treatment was persevered in unremittingly, and iodids, though thoroughly tested, were without effect, as he possessed an intolerance for them. In September, tinnitus aurium, accompanied by severe pains in the right ear developed, though there was no change apparent in the tympanum; and there was also pain in the right frontal sinus. This pain was so severe and persistent that the patient insisted there must be suppuration. An examination proved it to be healthy, but foul pus was being discharged from the sphenoid and the region of the ethmoid and it was evident that caries was progressing rapidly.

The swelling of the naso-pharyngeal wall and the extreme sensitiveness of the throat rendered a full rhinoscopic view difficult, but an area of diseased bone 2 c.m. in length by 1 c.m. in breadth could be seen and it was evident that the body of the sphenoid and basilar process of the occipital bone were disintegrating. At different times a quantity of carious bone was removed through the nostrils, with an instrument devised for that purpose, with no appreciable benefit. Frequent cleansing of the nostrils and throat now became necessary to remove the pus which was abundant. Through the winter of 1892 he became very feeble and occasionally morphin was necessary to relieve the pain. On Jan. 24, 1893, he was induced to take a trip to Florida in the hope that the outdoor life might improve his condition. Dr. Emmerling accompanied him and they stopped at Baltimore to see Drs. Osler and Halsted, who gave the opinion that he was suffering from necrosis of the base of the skull, and thought that an operation, while doubtful might be of benefit, and that a trip South would improve his physical condition.

During the first two weeks in Florida the patient improved markedly; the pus became greatly diminished and he could spend the whole day fishing. He ate well and was able to walk long distances. On a change of the weather, however, he contracted a slight cold and steadily declined in strength, suffering severe pains and having some symptoms of abscess of the brain. He was brought home on April 1, very weak; appetite bad; constant headache; twitching of the left trapezius and muscles of the back of the neck, with sensory disturbances of the face. The lymphatic glands on the left side, at the angle of the jaw had suppurated and were lanced; the resulting wound was exceedingly indolent, nearly closing at one time. The caries had progressed steadily and there were sinuses in the sphenoid and basilar process that admitted the entrance of a small probe for 3 or 4 mm. The pus was more abundant in the pharynx. This flow was freer at times, giving relief from the pain for a few hours. Ordinarily one-third of a grain of morphin was necessary twice daily. Finally, the bladder became inflamed and catheterization was required. To help the headache, frequent applications of the faradic current were made. During this decline, his faculties were preserved to the last, the only mental aberrations being wild dreams under morphin.

May 28, he was taking one-third grain of morphin, two or three times a day; refused food on account of nausea when it was brought to him, and always vomited when lying on left side. The gland that had suppurated now exhibited the character of a fungating ulcer, and a bed-sore over the sacral spine was very painful and difficult to heal. His eyes had a slightly crossed appearance, but he never complained of a diplopia.

June 2, the bed-sore was nearly healed, but the cystitis was much aggravated and regular catheterization was necessary. A proctitis had also developed from use of the rectum for alimentation: yet at this period he could walk to the lounge to have his nostrils cleaned or examined. During the next ten days he failed much, until the early morning of June 13, when he was found trying to vomit and on questioning what had happened, he said the pus was running down his throat; some of it ran from the nose and he expectorated about an ounce. His voice was peculiarly cavernous, having a nasal ring. He was mentally clear for a time and had less pain, but was very pallid and the respirations increased. Gradually he became comatose and died in a few hours.

Post-mortem:—The head only was examined. On removing the calvarium, which was not thicker than the average, the dura was found very adherent, especially to the frontal bones. The adhesion was not uniform but in spots; elsewhere it was soft, thick and easily detached. A pachymeningitis with passive congestion, was exhibited over the frontal and temporo-sphenoidal lobes of the brain. On dividing the dura and falx cerebri transversely, the pia and arachnoid were found to be hyperemic on both sides with considerable edema of the right side. Stripping the dura forward it was found adherent to the anterior pole of the cerebrum, by a lepto-meningitis. The left hemisphere was congested, but its consistency and color were normal, while the right was soft, putty-like and nearly diffluent. As the brain was lifted out of the fossæ the adhesion of the membranes to the frontal, and temporo-sphenoidal lobes was seen, and an abscess-cavity springing from the center of the right wing of the sphenoid entered the temporo-sphenoidal lobe. This abscess had dissected its way between the dura and the sphenoid back of the middle lacerated foramen, up over the petrous portion of the temporal bone as far back as the internal auditory meatus. This abscess, which was of the size of a walnut, traced medially, dipped beneath the structures which passed through the foramen rotundum and pierced the base of the right wing of the sphenoid, entering the sphenoidal and spheno-ethmoidal cells into the naval cavity. The walls of this abscess in the brain were soft, without any resemblance to brain matter and the entire hemisphere was exceedingly soft.

By dividing the lesser wings of the sphenoid, the orbital and nasal cavities were exposed from above; pus was present in the orbit and it was found that a sinus led from the right side into the orbital cavity and connected with the anterior ethmoidal cells, and the abscess of the brain. The entire body of the sphenoid and basilar process of the occipital bone were riddled with sinuses, exposing the external surface of the dura and leaving it as the only protection and support of that part of the base of the brain resting on the clivus blumenbachii. The pterygoid processes and ascending rami of the palatine bones were carious and loose. The vomer was entirely gone, as also the perpendicular plate of the ethmoid. The cribriform plate of the ethmoid, the turbinated bones and lesser wings of the sphenoid were intact. Both antrums, the frontal sinuses and the turbinates were free from disease, while the post-pharyngeal wall was intensely congested and thickened to the extent of half an inch, nearly closing the isthmus of the naso-pharynx. This thickening of the mucous

membrane also extended to the sides of the naso-pharynx, closing or obstructing the Eustachian tubes. The abscess and excavated bony base at the floor of the brain brought vital parts into great danger. The carotids, cavernous sinuses, crura cerebri and other structures were within a few cells distance of infection.

The pus that poured fron the nose and into the throat on the morning when he died, came from this abscess of the brain, and the consequent passive congestion and anemia of the brain was the *coup-de-grace*.

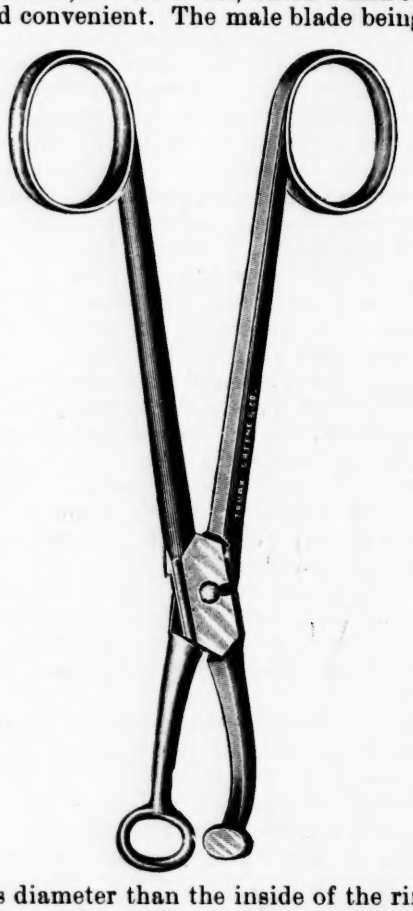
NEW SEPTUM FORCEPS.

Read in the Section on Laryngology and Otology, at the Forty-sixth Annual Meeting of the American Medical Association, at Baltimore, Md., May 7-10, 1895.

BY A. J. ERWIN, M.D.

MANSFIELD, OHIO.

Having long felt the want of an implement for the correction of the deviated septum, I had these forceps made by Truax, Greene & Co., which I find to be very useful and convenient. The male blade being 4 m.m.



less in its diameter than the inside of the ring blade, it does not cut the cartilage while reversing its convexity; it produces at most, a kind of green stick fracture of the septal periphery, which makes it easy of support. In most cases a hard pledget of cotton will keep it in place as required for a few days. Sometimes you will find it better to use the pin. One size, just as large again as this cut, will answer for every case, except for children, and they do not need it.

Dear Doctor:—Please direct the attention of your friends to *our* JOURNAL. We will be pleased to send sample copies to any names you may suggest.

ON THE LOCAL AND GENERAL CONDITIONS THAT CHANGE CORNEAL CURVATURES.

Read in the Section on Ophthalmology, at the Forty-sixth Annual Meeting of the American Medical Association Baltimore, Md., May 7-10, 1895.

BY LOUIS J. LAUTENBACH, M.D., PH.D.

PHILADELPHIA.

Theoretically, astigmatism may be occasioned by any irregularity of curvature or of structure of any of the tissue layers of the eye lying in the course of the visual axis; but practically, it is usually lenticular or corneal in its origin and is an irregularity of curvature and not of structure. Of these the corneal variety is by far the most common, while the lenticular form is rarely sufficiently prominent to interfere with vision.

In this paper I will confine my attention to regular astigmatism developed in the cornea, and will but incidentally notice lenticular astigmatism. Formerly, regular astigmatism was considered a congenital deformity, sufficiently fixed and definite to remain ever in its original condition, excepting when modified by some violence, traumatic or inflammatory, exerted upon the cornea, or by some change in the lens substance from degeneration or injury. Later, when the opinion began to be expressed that perhaps the astigmatism was a little more variable than had been supposed, these changes when admitted, were attributed to alterations in the lens substance or in its curvatures, from distorted or spasmodic action of the ciliary muscle.

In my opinion, many and various are the causes of astigmatism and of its variation. I will attempt to explain how normal astigmatism develops and the influences which determine its origin and extent, and will also attempt to show that while astigmatism is nearly always present congenitally, with its seat in the cornea, this corneal astigmatism is not by any means constant throughout life, its degree and axes being subject to variations. These variations may be many, frequent and even sudden, due to a great variety of causes, constitutional as well as local.

Burnett[1] speaking of reported cases of progressive changes in the degree of astigmatism and in the direction of the principal meridian says: "We can not positively exclude a change in corneal curvature, but it is most probable that the change is due to alteration in the shape of the lens, either from changes in its substance or from a modified action of the ciliary muscle."

Fuchs[2] says that, "The cause of regular astigmatism in the great majority of cases is a congenital irregularity of the curvature of the cornea." He also writes: "Acquired astigmatism may have its cause in the cornea or in the lens. The former variety occurs when the curvature of the cornea has been altered, either because of disease affecting it or still more frequently because of operations. The lens gives rise to a regular astigmatism when it is obliquely placed, as for example, in subluxation."

Noyes[3] says that regular astigmatism "is chiefly dependent upon abnormal curve of lens or want of homogeneousness in the lens." He acknowledged that "some rare cases of astigmatism are acquired; but as a rule the regular astigmatism of the cornea is congenital. Acquired astigmatism in the cornea when no opacity exists, comes from conicity of the membrane or happens after tenotomy of the muscles,

or after wounds of the cornea, iridectomy and extraction of cataract."

Schmidt-Rimpler[4] writes of regular astigmatism as follows: "As a rule, the affection is congenital. It is found occasionally in corneal opacity;" and "from ulcerations and ectasiæ, particularly keratoconus. It is especially frequent after cataract operation and may also occur after iridectomy."

A theory extensively advocated in the past, is expressed by Javal[5] as follows: "The meridian of greatest refraction corresponds to the shortest diameter of the skull." This theory places the burden of the formation of astigmatism entirely upon the development of the osseous structures and when these are fixed, no change of astigmatism can occur save from injury or disease.

Corneal curvature, and, consequently, corneal astigmatism when present, is the result of a number of forces more or less antagonistic, exerting their powers upon the corneal texture. The cornea, a dense elastic tissue, is inserted as a watch glass in the front of a softer spherical body; the eyeball which in turn rests upon a cushion of fat, being held in position by the recti and oblique muscles, aided by the orbicularis palpebrarum and, to some extent, by the optic nerve and orbital tissues. The sphere is made sufficiently tense to retain its normal shape by the rigidity of its walls, the pressure of its semi-fluid contents, and a resistance and muscular plane situated immediately posterior to the insertion of the cornea—I refer to the iris and ciliary body with the lens and its capsule. The corneal structure being denser than any other part of the sphere's walls, offers more resistance to pressure changes.

The pre-natal cornea is subjected to pressure from within and without. The corneal surface is the result of these opposing forces. The pressure from within the eye, during the period of growth, stretches the tissues of the eyeball in all directions. In consequence of this, the cornea being the densest and most rigid portion thereof, is subject to the least change in curvature, but having the radii of its curves increased, the support of the recti muscles and of the orbicularis still further opposes this flattening, the oblique muscles and to a limited extent the levator palpebræ aiding it. Among the other influences working at this time, is the resistance offered laterally and posteriorly, to the growth of the ball and to the play of the various forces indicated, by the walls and contents of the orbital cavity. If the equatorial resistance of the orbit be greater than normal, the corneal curvatures will in consequence be increased, while, *vice versa*, if too much pressure be exerted from behind the eyeball, they will be decreased and the cornea flattened. The corneal curvatures at birth are but the resultants of these conflicting forces, and through life these same factors play even as important a part in the retention or in the alteration of its curves, except that the forces applied are apt to be more irregular in their action, while the cornea having become fairly rigid and having assumed a more fixed and definite form, more strenuously opposes changes of all kinds, whether applied from within or from without the globe. All forms and varieties of astigmatism are the direct result of the action of these various influences and from the degree and axis of the astigmatism, we can, by careful study determine the exact location of the supra- and subnormal forces.

Presuming that the corneal resistance remains constant, if the internal pressure be above normal, the corneal curvatures become more flattened. This flattening is usually more marked in the vertical meridian, as in this meridian the recti muscles normally offer the least resistance, and the orbicularis palpebrarum being at the same time by the increased bulging forward of the eyeball, thrown into a position to exert less than the normal pressure. In conditions where the intra-ocular pressure is diminished, exactly the opposite conditions result, the corneal curvatures increase—the vertical meridian becoming usually the more convex—the orbicularis again playing an important part in this change.

If the orbicularis is more than usually powerful, or too active, the vertical meridian becomes more markedly curved than usual; if this muscle be too weak, it is lessened. If the levator palpebræ are unusually developed, the vertical meridian is prone to become flattened. If the vertical recti muscles are more developed than usual, the normal astigmatism of an eye, namely, astigmatism with the rule, in which the curve in the vertical meridian is greater than in the horizontal, is apt to be increased, whereas if there is a want of development or any weakness in these muscles, the vertical meridian becomes more flattened. If the horizontal external pressure on the eye be greater than normal, if one or both the lateral recti muscles be too strong or in a spasmodic state, the curve in the horizontal meridian is increased, and if they be either weakened or paralyzed this curvature will be diminished. The effect of the oblique muscles is to twist the principal meridians away from their usual horizontal and vertical positions and to flatten all the curvatures, especially those near the horizontal meridian.

To more thoroughly appreciate corneal changes as affected by the recti muscles, a study of their insertions may prove valuable. Beginning with the weakest of the recti, the superior, it is inserted[6] 3.3-5$'''$ behind the cornea with its inner end 1$'''$ nearer the cornea than the outer, while the inferior is inserted 3$'''$ behind the cornea, $\frac{1}{2}'''$ inward from the end of the vertical meridian and with its inner end 1$'''$ nearer the cornea than the outer, while the inner, the thickest of the straight muscles, is inserted 2$'''$ back of the cornea; and the outer,[7] the strongest and longest, is inserted $3\frac{1}{2}'''$ back of it. These individual peculiarities of length, strength, and especially of the insertion of these muscles prove interesting, not only as regards the relative weakness of the vertical recti, as instanced in the fact that both these recti are smaller and their insertions farther removed from the cornea than the horizontal, but also in the study of the origin and development of the not infrequent cases of astigmatism in axes not exactly corresponding to the horizontal and vertical.

The actions of the recti muscles, I have illustrated by constructing a series of small rubber balls having white varnished surfaces, with tapes glued to them to represent the muscles, and then drawing the various tapes with different degrees of strength, measuring the changes in curvature by means of the ophthalmometer. I used the same means to illustrate the changes produced by increased intra-ocular pressure with the expected result, and constructed artificial eyelids on these balls, and by the observations confirmed the theoretic consideration. Another method which I employed to illustrate the same subject was by mounting the eyes of hogs and pigs in the

guillotine of the ophthalmometer and then producing contraction of the muscles and measuring the corneal radii. This series of experiments, while entirely confirmatory of the results above given, are not yet in such shape as to allow of a full tabulated report.

To illustrate the action of the lids—the orbicularis palpebrarum and the relation of its actions to that of the recti muscles—I have constructed two rods of equal length, one to represent the horizontal meridian, the other the vertical. On the first, you see weights suspended from each end. These weights represent the pulling effect of the recti muscles. On the other rod, you observe the end weights are smaller, and sliding up and down these rods are two extra weights which you will observe I have so arranged that I can add to, or subtract from, as necessary. The end weights represent the pulling force exerted on the cornea by the vertical muscles, while the sliding weights represent the variable pressure as exerted by the lids—the orbicularis as opposed by the levator palpebræ. The nearer the center of the cornea this muscle exerts its influence, the greater its power, so as I move this weight toward the axis on which I have the rod suspended, the more weights do I place upon it, and the farther I remove this slide from the center, the more weight do I remove from it. This will illustrate the conditions which prevail in all eyes subjected either to extra intra-ocular pressure or extra post-ocular pressure, or in affections involving the orbicularis muscles. As the pressure increases, the lids are thrown back from the eye away from the corneal pole, and this muscle is placed at a disadvantage and is not able to exert its full muscular influence. Extra action of the levator palpebræ brings about the same condition.

The value of these actions being seen in the determination of the radii of curvature and the production of the principal meridians of the cornea, variations from the normal can in each individual case be explained by a consideration of the conditions present, as contrasted with those normally found. As before mentioned, increased intra-ocular pressure as well as increased post-ocular pressure, occasions a flattening of the curves, whereas if either of these be below normal it will result in an increase in the curvature in the first—the vertical meridian is apt to be the more flattened—and the latter more curved, whereas any increase of pressure either lateral, from the orbital walls, or, as exerted by the muscles, or from in the front, by the lids, results in an increased curvature, the meridian of greatest increase being in the line of greatest force.

While normal corneæ are under the influence of these antagonistic muscular and other forces, they usually show little or no sign of curvature changes, but when a change of this kind does occur without any definite and distinct cause, it is very slight, slow and regular, and is almost always an increase in the curvature of the vertical meridian as contrasted with the horizontal. This relative increase in the curvature of the vertical meridian may be considered as normal; it seems to be occasioned by a gradual giving way in this meridian, due to the constant slight excess of pressure of the vertical recti, plus the lids over the lateral recti, and to the slight weakness of the internal rectus so often produced in modern life by the intellectual pursuits, overtaxing the lateral muscles, and possibly to some extent leading to a gradual change in the ciliary muscle from over-use.

In the case of abnormal corneæ where the corneal tissues are below par, either from local inflammations, from interference with the nutritive supply from pressure, or from constitutional diseases, these corneal disturbances are not slight, slow and regular, but are often sudden and violent, the curvature and axes often varying as one or the other of the muscles or series of muscles is brought into action.

We can then for convenience arbitrarily arrange non-inflammatory changes in corneal curvature into two classes:

1. Those occurring in well nourished normal corneæ where the changes of radii or axes or both are slow, regular, but progressive; and

2. Those occurring in corneæ poorly nourished where the changes are rapid, irregular and variable.

Since reading a paper on corneal curvature[8] before the Philadelphia County Medical Society in June of last year, I have been pursuing the subject in both a clinical and experimental manner. My clinical work has served but to accentuate the results therein expressed, while the experimental work so far as it has gone, confirms the clinical observations. In studying the cases clinically, I rely mainly on my ophthalmometer, but to some extent on skiascopy and the subjective testing with glasses with the accommodation paralyzed.

Considering the latter method first, I have found that in cases of suspected variability in corneal astigmatism, suspected because the ophthalmometric measurements indicated it, that the testing of the refraction almost invariably showed absence of marked improvement of remote vision, and that the principal axes were either not clearly defined, or perhaps not at the ordinary intervals of 90°, the results being uncertain, both as to the axes and the amount of vision obtained. These results appeared not only after the thorough use of homatropin according to the method indicated below,* but even after the thorough and persistent use of atropia. In these cases the skiascopic observations gave similar results as to the uncertainty of the axes and in the amount of astigmatism.

My method of using the Javal-Schiotz ophthalmometer I have already indicated in a paper[9] read before the Pan-American Medical Congress in May, 1893. I use electric lights as illuminators and thus have practically the same illumination present in each case. The instrument is placed on a firm non-vibrating stand. The patient seats himself before the instrument, his feet resting firmly upon the floor with his arms upon the table. He then places his chin upon the sliding rest, which is raised or lowered so as to bring the eyes to the proper height and on an absolute level. Having attended to these details, the head is strapped firmly to the head rest. The patient is directed to look at a 5 mm. square placed upon the center of the field glass of the telescope, and the instrument is adjusted so that the exact center of the field is occupied by the mires in apposition. In some cases, a want of accuracy is occasioned by the drying of the cornea while under observation, which I obviate by the use of a weak solution of salt;

* In ordering homatropin, I always give a printed prescription as below, and ask that the directions be carefully observed, using five doses of the drops in the evening and five in the morning, the examination taking place after the last instillation.

℞ Homatropin hydrobrom . . . . . gr. s. s.
Aquæ rosæ. . . . . m. xxv.
M. Sig. Eye drops. One drop in the outer corner of each eye every half hour for two hours in the evening, and every twenty minutes the succeeding morning.

again the same difficulty is caused by profuse conjunctival discharges which is overcome by using castor oil in the conjunctival sac, rubbing thoroughly over the cornea.

My ophthalmometric observations have been made on over 3,000 eyes, and my attention was early called to the fact that corneal meridians and their axes were by no means constant. Not only did I observe them sometimes to vary from day to day, or from week to week, but also that these changes would occur during the course of a few seconds. I have found the corneal astigmatism to change from 2 to 3 dioptres in from eight to ten seconds, and the axes as much as 25° during the same period, this occurring in corneæ not inflamed and not associated with any eye inflammation.

(See reference 8.) (Case 1 illustrates these violent changes.)

Laqueur[10] made the same observation, although he did not record such extreme cases as I have noted. I have invariably found these quick and instantaneous changes associated with depraved conditions of the general system, having observed it in advanced cases of syphilis; in the scrofulous and the tubercular; in those subject to gout and rheumatism, especially the latter; after scarlet fever, diphtheria, typhoid fever and pneumonia and in those suffering from chronic diarrhea and exophthalmic goitre. Noyes writes: "It is not rare to discover, as Laqueur pointed out, that the curve of the cornea is not constant. It sometimes changes as we look at it; we note the images approach or separate instead of remaining still." Continuing: "They exhibit these oscillations under the action of the lids, and also if the upper lid is lifted off the globe, under the action of the motor muscles. Drawing on the lids at the outer angle will increase the corneal curves greatly." Laqueur[10] observed that the traction on the upper lid, whether toward the temple or the nose, occasionally produced flattening of the horizontal meridian and increased curvature of the vertical meridian by pressure on the globe, so that regular astigmatism of from 2 to 4 D. developed.

I early observed that the corneal measurements were sometimes altered after the accommodation had been paralyzed. After noting this phenomenon a number of times, I made a series of experiments: 1, taking corneæ whose meridians remained constant from day to day, I would paralyze the accommodation and while, often without any appreciable effect, when any change was occasioned it was usually of a decrease in the corneal curves with, often, an increased development of astigmatism if with the rule, and a diminution when against the rule. (Case 2 illustrates the experiment.)

It would seem from these observations that the ciliary muscle is one of the factors in the determination of the corneal curves.

The second series of experiments consisted in taking corneæ with constant curves and, while measuring them on the ophthalmometer, throwing a pencil of light on the eyes, I found that changes in the meridian frequently occurred and that these changes were usually in the nature of an increased curvature with, often, a lessening of a degree of astigmatism when with the rule, and an increase of it when against the rule. (Case 3 illustrates the experiment.)

So far as I know, this theory of the action of the ciliary muscle in modifying corneal curvatures is opposed to the views of all who have written on the subject, and yet these observations were so frequently and accurately made that I am sure some modification of the corneal curves must be attributed to the action of this muscle. The ciliary muscle serves, no doubt, as a muscular framework to support the eyeball immediately posterior to the cornea; when the muscle is in use it acts as a drawing string within the ball, constricting it anteriorly. In paralysis of the accommodation, the internal muscular force being removed, the corneal elasticity and the eye tension serve to increase the corneal radii. If the accommodative paralysis be long continued, the vertical meridian gives way proportionately more and more, as the lid pressure is gradually removed a greater distance from the corneal pole.

As previously indicated, corneal changes are of two kinds. It is in sound corneæ subjected to unequal pressure, that we find the first class of changes before mentioned—slow, irregular and progressive variations in corneal astigmatism. In unhealthy corneæ we have our second class of changes—that of the irregular, rapid and variable. A practical fact of some importance is that in this latter class of cases the symptoms of poor vision, head pains, vertigo and sick stomach are often extremely severe and can only be relieved by putting the cornea at rest, which is most readily accomplished by absolutely paralyzing the accommodation, in this way preventing the use of the external muscles with their consequent constant disturbance of the cornea. The monocular double vision occasionally observed, is undoubtedly in a not inconsiderable number of cases, thus produced.

According to Dobrowolsky[12] the irregular contraction of the fibers of the ciliary muscle changes the refraction of the eye by its influence on the curvature of the lens, while Wallace[13] speaking of the Javal ophthalmometer says: "That variations of accommodation in the patient's eye do not modify the degree of astigmatism. The curvature of the corneal meridians remains the same during active accommodation as during the passive state." Burnett[14] also seems to consider the ciliary muscle as exercising no effect on the cornea, as he says: "The accommodation in its entirety can not affect the amount of astigmatism, though it greatly modifies its general character." It would seem however from the reports of Dobrowolsky, Javal[15] and others that "there can be a partial contraction of the muscle of accommodation, producing a lenticular astigmatism, the effect of which would be either to create a new, or increase an existing astigmatism, or to a greater or less extent, to neutralize that of the cornea."

I hope I have shown how such an apparently slight influence as the contraction or paralysis of the ciliary muscle may influence corneal curvature, and consequently its astigmatism, so I will refer more briefly to the greater influences that govern its meridians. I will premise by asserting that corneæ are influenced, all other things being equal, in proportion as their development has been deficient, or their nutrition insufficient. Well developed and healthy corneæ of thoroughly healthy and robust patients are, according to my observations, rarely affected by any but the most marked and violent local disturbances, whereas corneæ deficient in resisting quality, either as the result of a previous inflammation or of an existing disturbance, and the corneæ of those suffering from con-

stitutional dyscrasia, of those convalescent from acute febrile diseases, and of those who have been subject to the ravages of prolonged chronic disorders, are affected by the slightest local derangement—the least want of that exact balance of the various forces that so thoroughly control the shape and motion of the eyeball, whether this be an increase or decrease of orbital contents, or some variation in the tonicity of the eye muscles, some difference in the amount of pressure exerted upon the ball by the lids, some variation in the strength of the ciliary trestlework, or some change of pressure within the ball. In short, any change of pressure within or without the eye, may and often does alter the corneal meridians, always does so in weak corneæ, and if the want of balance be sufficiently long continued, will do so in sound healthy corneæ.

In dealing with wounds of the corneal tissues, it can be easily understood how any abrasion or injury of any kind, affecting the deeper layers, can be readily followed by a change of corneal curvature. If the wound be sufficiently extensive or near the pole, its effect upon the visual region of the cornea will be considerable and give rise to a marked disturbance of the corneal meridians. We all expect to have marked corneal changes develop after an iridectomy or a cataract extraction. We often find the astigmatism after a cataract extraction to be increased 10 to 16 D. or more, the meridian of least curvature being at right angles to the line of incision. As cicatrization and absorption advance, the astigmatism gradually diminishes until it approaches the normal. (Case 4 illustrates this).

Corneal inflammation involving the fibrous and elastic layers is always followed by changes in corneal curvature, these changes depending upon the extent and depth of the inflammation, and its practical importance to its proximity to the visual line. Staphylomata show, in an exaggerated degree, the effects of the intra-ocular and external muscular pressure on a weakened corneal texture—the staphylomata being the result of these antagonistic forces.

My experience after advancement and section of the recti muscles has been to find a marked change in the corneal astigmatism. In advancement, the meridian corresponding to the plane of the advanced muscle has its radius diminished on account of the increased tension thereon exerted, while the opposite meridian is occasionally flattened. In tenotomy, the meridian in the plane of the muscle operated upon is flattened, while the opposite meridian is often more curved. Noyes[16] calls attention to this acquired astigmatism of the cornea, following tenotomy of the muscles.

Pterygii occasion irregular flattening of the meridian of their growth which increases as it advances and which usually subside if the pterygium is removed sufficiently early. (Case 5 is an illustration.) Noyes[17] gives us a practical lesson when he writes: "I have formerly been indisposed to remove pterygium until it made appreciable advances toward the region of the pupil, but having noticed that under its influence astigmatism arises, I now remove it when not more than 2 millimeters beyond the limbus."

As illustrating the changes of the corneal curvatures from pressure exerted within the eyeball, I will for a moment direct your attention to the well-known changes occurring in the course of glaucoma. The importance of these observations consists in the fact that in fully three-fourths of the cases of the disease there is a prodromal stage lasting often for months and even years, and that if the corneal curvature change, presenting itself in this stage be recognized, (and it is among the earliest of symptoms) the seriousness of the disease is often averted. As a glaucomatous attack begins to cause increase of pressure within the eyeball, it not only presses all the structures in an outward direction, but by reason of this very pressure interferes with the corneal nutrition. The corneal images as seen by the ophthalmometer, become more or less indistinct and later quite hazy, and the curvature of the principal meridians change, the horizontal becoming more curved and the vertical more flattened, while often the axes assume new relations to each other, not remaining 90° apart. As the disease advances, the changes become gradually greater until often there is developed a change of as much as 3 or 4 D., the astigmatism developing against the rule. (Cases 6 and 7 show this change.)

The same change is observed in glioma of the retina, sarcoma of the choroid, and sometimes follows vitreous inflammation and hemorrhage into the retina. I have observed the same change in some cases of exophthalmic goitre. (Case 8.)

As illustrating changes occasioned by variations in the capacity of the orbit, I have observed in some cases, when corpulence was increased, a change in the corneal curvatures, which disappeared after the excess of fat deposited in the orbit had been absorbed. Orbital tumors, such as exostoses, fibromata, sarcomata, lipomata, myxomata, melonomata, cysts, etc., have a tendency to alter corneal curvatures, their influence being most observed in the meridian of greatest pressure; their effect upon the cornea being entirely dependent upon the lines of greatest increased force.

In *conclusion, it may be said:*

1. That regular astigmatism is always corneal or lenticular, but usually the former.

2. That regular corneal astigmatism is the result of a variety of forces, acting upon the cornea, these forces being usually so accurately balanced as to result in the production of normal astigmatism, a low degree of astigmatism with the rule.

3. That these forces consist not only of the muscles of the eye and of the lids, but that the orbital resistance, the intra-ocular pressure, and even the ciliary muscle are concerned, as well as the tonicity of the cornea.

4. That anything that interferes in any way with the accurate balancing of these forces, results in the production of astigmatism, modified or altered in accordance with the excess or deficiency of the power exerted.

5. That the inequality of forces, when long continued, affects healthy cornea, giving rise to slow, regular, progressive changes in the axes or degree of astigmatism or of both.

6. That these unequal forces acting upon corneæ weak from local or constitutional causes, produce more rapid and violent, often instantaneous, changes in the axes or degree of astigmatism or of both.

7. That any local condition that interferes with the texture or nutrition of the cornea predisposes to changes in corneal axes and curvatures.

8. That any constitutional affection in any way modifying the general circulation and thus changing the corneal nutrient supply, predisposes to these changes.

9. That any force acting unduly on the cornea should have its action modified as soon as possible.

10. That corneæ under the influence of unequal forces, should be put at rest at the earliest possible moment.

11. That corneæ weak from general or local conditions after being put at rest, should be promptly and efficiently treated in order to render them strong and healthy.

12. That in many eye affections, a study of the corneal changes will serve to shed light on otherwise obscure conditions.

13. That by carefully studying these corneal curvature changes in connection with the kind, degree and axis of astigmatism, indications for the treatment of the eye muscles will be obtained that were otherwise impossible.

Case 1.—Illustrating sudden changes in amount of corneal astigmatism and in the axes of curvature: Miss N. B., aged 21 years, pale, poorly nourished, blonde, of a scrofulous type; was first examined by me July 7, 1893. V. R. R. E., 6–15; L. E., 6–60. Ophthalmometer, R. E., images hazy, indistinct, axes variable above and below 90°. Astigmatism amount varying from 0.25 to 0.75 D. L. E., hazy, indistinct, axes variable, 15° above and below 38° and 120°, amount varying from 1.25 D. to 3.50 D. Re-examined July 11, 1893. R. E., axes variable to either side of 80° and 170°, amount varying from 0.25 to 0 75 D. L. E., axes variable, 15° above and below 30° and 120°, quantity from 1.25 to 3.50 D. The axes and amount continued to vary; gradually the extent and rapidity of variable becoming lessened as the girl's health improved under the influence of rest, tonics, codliver oil and mercury. Examination Oct. 1, 1893, indicated that the axes and curves were fixed, the ophthalmometric record being:

R. E., ax. 90°, amount 1–6 D., corneal radius 7.7½ m.m.
" ax. 180°, " " " " 7.7⅔ "
L. E., ax. 125°, " 1½ D., " " 7.5⅓ "
" ax. 35°, " " " " 7.7⅛ "

Refraction under atropin, Oct. 14, 1893, was found to be:
R. E., sp. — 0.50 D. ⊃ cyl. — 0.75 D., ax. 180°.
L. E., sp. — 0.75 D. ⊃ cyl. — 1.25 D., ax. 90°.

The glasses ordered and which have given perfect satisfaction up to the present were, R. E.. cyl. — 0.75 D. ax. 180° = 6–9; L. E., cyl. — 1.25 D., ax. 90° = 6–9.

Case 2.—Illustrating the effect of paralysis of the ciliary muscle on the curvatures of normal cornea: Miss E. W., aged 7 years. R. V. R. E., 6–30. L. E., 6–30. Measured upon ophthalmometer gave the following measurements at three different examinations: images clear and distinct; no varying in the axes or amount of corneal astigmatism. Last examination, July 7, 1895.

R. E., ax. 95°, amount corneal astigmatism 3⅓ D., corneal radius, 8.4⅓ m.m.; ax. 5°, amount corneal astigmatism, 3⅓ D., corneal radius, 7.8⅛ m.m.

L. E., ax. 85°, amount corneal astigmatism, 3¼ D., corneal radius, 8.5¼ m.m.; ax. 170°, 3¼ D., corneal radius, 7.9½ m.m.

When examined Sept. 9, 1895, under mydriasis complete, gave the following records:

R. E., ax., 95°, amount corneal astigmatism, 3 + D., corneal radius, 8.4⅓ m.m.; ax. 5°. corneal astigmatism, 3 + D., corneal radius, 7.8⅛ m m.

L. E., ax. 85 D., amount of corneal astigmatism 4¼ D., corneal radius, 8.6 m.m.; ax. 175°, amount of corneal astigmatism 4¼ D., corneal radius 7.8⅓ + m.m.

As refracted by glasses the same day, the following result was obtained:

R. E., sp. + 4.00 D., cyl. + 3.00 D., ax. 90°.
L. E., sp. + 4.00 D., cyl., + 4.00 D., ax. 90°.

Case 3.—Illustrating the effect of accommodation on the curvature of normal cornæ; Miss M. S., aged 23 years. Examined on three occasions with a constant result. Last examination Sept. 9, 1894, as follows:

R. E., ax. 103°, amount astigmatism 2½ D., corneal radius 8.3 4–5 m.m.; ax. 13°, amount astigmatism 2½ D., corneal radius 7.9 m.m.

L. E., ax. 75°, amount astigmatism 2½ D., corneal radius 8.4 1–5 m.m.; ax. 165°, amount astigmatism, 2½ D., corneal radius 8.0 2–3 m.m.

These observations changed to the following when the light of a 16-candle power incandescent globe was reflected on the eyes:

R. E., ax, 103°, amount corneal astigmatism 1¾ D., corneal radius 8.3 2–5 m.m.; ax. 13°, amount corneal astigmatism 1¾ D., corneal radius 7.9 + m.m.

L. E., ax. 75°, amount corneal astigmatism 2 — D., corneal radius 8.3⅞ m.m.; ax. 165°, amount corneal astigmatism 2 — D., corneal radius 8.0⅔ m.m.

Case 4.—Illustrates the effects of the operation of cataract extraction: Mrs. C. L., aged 66 years. Ophthalmometric measurement March 10, 1894, as follows:

R. E., ax. 110°, amount corneal astigmatism 6 D., corneal radius 8.5 m.m.; ax. 20°, amount corneal astigmatism 6 D., corneal radius 7.5 m.m.

Graefe extraction with iridectomy June 1, 1894. Measurements taken June 22, 1894:

R. E., ax. 95°, amount corneal astigmatism 9 D., corneal radius 7.4⅔ m.m.; ax. 10° amount corneal astigmatism 9 D., corneal radius 8.7¼ m.m.

Taken again April 26, 1895. Astigmatism much reduced:

R. E., ax. 95°, amount corneal astigmatism 3 D., corneal radius 7.9⅔ m.m.; ax. 20°, amount corneal astigmatism 3 D., corneal radius 8.3¾ m.m.

Case 5.—Illustrates the influence exerted on the corneal curves as well as the changes occasioned by its removal; Mr. P. M., aged 50 years. Pterygium L. E., extending 2½ m.m. over cornea toward the pole from inner side.

Ophthalmometer showed the following:

L. E., ax. 80°, amount corneal astigmatism 2½ D. irregular, corneal radius 8.9½ m.m.; ax. 170° amount corneal astigmatism 2½ D. irregular, corneal radius 8.3⅓ m.m.

Pterygium removed Feb. 12, 1894. Reëxamined April 17, 1894, with the following result: L. E., ax. 90°, amount corneal curvature 2 — D. irregular, corneal radius 8.7½ m.m.; ax. 180°, amount corneal curvature 2 — D. irregular, corneal radius 8.3 m.m.

Cases 6 and 7.—Illustrating the change in corneal curvature accompanying glaucoma; Case 6, Mrs. W. C. W., aged 45 years. Ophthalmometric measurements many, usually with a result such as observed Feb. 10, 1893, which was as follows:

R. E., ax. 90°, amount corneal astigmatism ¼ D., corneal radius 8.1½ m.m.; ax. 180°, amount corneal astigmatism ¼ D., corneal radius 8.1+ m.m.

L. E., ax. 90°, amount corneal astigmatism ⅓ D., corneal radius 8.1½ m.m.; ax. 180°, amount corneal astigmatism ⅓ D., corneal radius 8.1 m.m.

Feb. 28, 1893, she came with glaucomatous symptoms beginning with iritis, sluggish, congested background with pulsation. The measurements were as follows:

R. E., ax, 90°, amount corneal astigmatism ⅓ D., corneal radius 8.0½ m.m.; ax. 180°, amount corneal astigmatism ⅓ D., corneal radius 8.1 m.m.

L. E., ax. 90°, amount corneal astigmatism ¼ D., corneal radius 8.0½ m.m.; ax. 180°, amount corneal astigmatism ¼ D., corneal radius 8.1 — m.m.

This attack was recovered from, but on Sept. 5, 1893, she came to me with a yet more marked series of symptoms, when the measurements were as follows:

R. E., ax. 90°, amount corneal astigmatism ½ + D., corneal radius 8.0 m.m.; ax. 180°, amount corneal astigmatism ½ + D., corneal radius 8. + m.m.

L. E., ax. 95°, amount corneal astigmatism ¾ + D., corneal radius 8.0 m.m.; ax. 180°, amount corneal astigmatism ¾ + D. corneal radius 8.1⅛ m.m.

When this attack was recovered from, she resumed her normal measurements.

Case 7.—Mr. A. G., aged 82 years. Came to me during the

[1] Burnett, S. M.: Treatise on Astigmatism, p. 46. 1887.
[2] Fuchs, Ernest.: Text-book of Ophthalmology, p. 653. 1892.
[3] Noyes, Henry D.: Diseases of the Eye, p. 111. 1894.
[4] Schmidt-Rimpler, Herman: Ophthalmology and Ophthalmoscopy, p. 84. 1889.
[5] Javal, E.: Del'astigm. and point de Vue de l'hygiene, Rev. de Hyg., 1880.
[6] Metz, A.: The Anatomy and Histology of the Human Eye. 1868.
[7] Allen, Harrison.: A System of Human Anatomy. 1883.
[8] Lautenbach, Louis J.: Some Observations on Corneal Astigmatism and Conditions that Change Corneal Curvature. Proceedings of Philadelphia County Medical Society. 1894.
[9] Lautenbach, Louis J.: The Value of the Ophthalmometer in the Determination of the Axis and Amoun of Astigmatism. 1893. New York Medical Journal for August, 1893.
[10] Laqueur.: Uber die Hornhaut Krümmeng in normalen Zustande u. unter Pathologischen Verhaltnissen, Ophthalmometreschen Untersuchungen. Graefe's Arch. XXX, 1, p. 99.
[11] Noyes.: (See ref. 3) p. 125.
[12] Dobrowolsky.: The Different Changes of the Astigmatism Under the Influence of the Accommodation. Arch. XIV, 3.
[13] De Schweinitz, G. E.: Diseases of the Eye, p. 169. 1892
[14] Burnett.: (See ref. 1) p. 71.
[15] Javal, E.: Sur la Theorie de l' Accomodat. Compt. Rend. de la Soc. Biolog. 1882.
[16] Noyes: See ref. 3, p. 111. [17] Noyes: See ref. 3, p. 370.

opening of a glaucomatous attack Jan. 30, 1894, when the measurement was as follows:

L. E., ax. 85°, amount corneal astigmatism ½ D., corneal radius 7.5½ m.m.

R. E., ax. 175°, amount corneal astigmatism ½ D., corneal radius 7.5 m.m.

The disease progressed rapidly; an operation was refused and the sight destroyed. The measurement taken March 30, 1894, was as follows:

L. E., ax. 80°, amount corneal astigmatism 4 D., corneal radius 7.4¼ m.m.; ax. 175°, amount corneal astigmatism 4 D., corneal radius 7.9 4-5 m.m.

By May 1, 1895, had increased as follows:

L. E., 75°, amount corneal astigmatism 10 D., corneal radius 7.1⅓ + m.m.; 165°, amount corneal astigmatism 10 D., corneal radius 8.0⅔ m.m.

Case 8.—Illustrating changes in corneal curvature occurring in the course of ophthalmic goitre. Miss M. B., aged 23 years. Examined at the first suggestion of the disease showed the following measurements, Feb. 1, 1893:

R. E., ax, 85°, amount corneal astigmatism ⅔, corneal radius 7.6½ m.m.; ax. 175°, amount corneal astigmatism ⅔, corneal radius 7.5¾ m.m.

L. E., ax. 95°, amount corneal astigmatism ¾, corneal radius 7.6¾ m.m.; ax. 5°, amount corneal astigmatism ¾, corneal radius 7.5¾ m.m.

Reëxamined after its rapid development, April 7, 1895:

R. E., ax. 80°, amount corneal astigmatism ½ + D., corneal radius 7.6 — m.m.; ax. 170°, amount corneal astigmatism ½ + D., corneal radius 7.6½ + m.m.

L. E., ax. 95°, amount corneal astigmatism ¾ D., corneal radius 7.5¾ m.m.; ax. 180, amount corneal astigmatism ¾ D., corneal radius 7.6¾ m.m.

1723 Walnut Street.

SPINE BRACE.

BY A. E. HOADLEY, M.D.

Professor of Orthopedic Surgery and Surgical Diseases of Joints, and Clinical Surgery, in the College of Physicians and Surgeons; Professor of Orthopedic Surgery and Diseases of Joints, Chicago Policlinic.

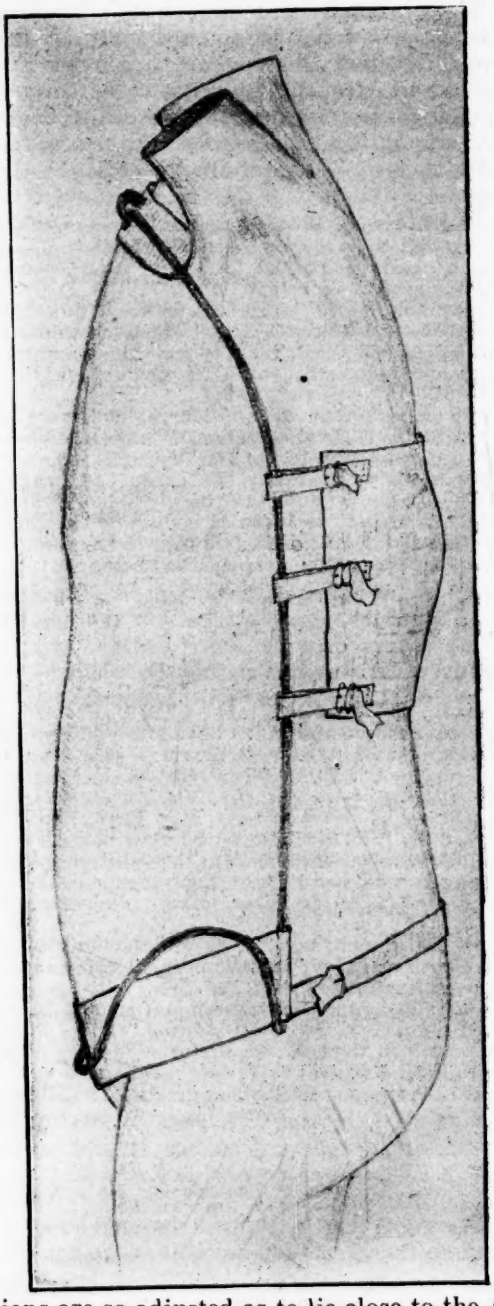
CHICAGO.

The brace that I wish to describe and exhibit, is one that I have designed and adopted for mechanical support of the middle region of the spine; the range of its greatest utility being the support of the spinal column between the middle of the lumbar and the middle of the dorsal regions, although its usefulness is not strictly confined to these limits. Inasmuch as the greater number of diseases of the spinal column requiring mechanical fixation occur within this region, its usefulness will be comparatively great if found to be an efficient brace.

In its simplest form the brace consists of a steel frame, a rigid chest pad and two aprons. The chest pad is adjusted in contour to fit the upper anterior portion of the chest. The pad should be in length about three times its width and adjusted transversely, resting immediately below the sterno-clavicular articulations. Its real length transversely should be as long as practical without being interfered with by the action of the pectoralis major muscles, in the movement of the shoulder. It should be made of sheet metal hammered to give shape and rigidity, covered and lightly padded.

The frame consists of one piece of light round rod steel, from three-sixteenths to five-sixteenths of an inch in diameter, so shaped that it crosses the body above and below and lies parallel with, and in close proximity to each side on a line with the axilla; the ends are welded or brazed where they meet, making it one continuous piece.

To facilitate the description of the frame we will divide it into four portions—an upper, a lower and two lateral portions. The upper and lower cross in front of the chest and pelvis respectively, and no portion of the frame passes behind the body. The upper portion of the frame arches upward and forward from a short distance below the axillary space on one side, crosses the chest pad, and then downward and backward to a corresponding point on the opposite side, where it becomes continuous with the lateral portions. There is no fixed point to indicate where the upper and lateral portions come together; a gentle reverse curve marks the place. The lateral



portions are so adjusted as to lie close to the sides, a little nearer the posterior than the anterior aspects, and extend from below the axilla to the space just behind the anterior superior spine of the ilium, below the crest and above the trochanter major. In children, this portion is practically straight, while in adult females they bend in at the waist line and then arch out over the more or less prominent hips, but remain straight in the antero-posterior directions unless some deformity requires a change in this shape.

The lower portion is simply to connect the two lateral portions across the body at their lower ends and hold them rigid relative to each other. In the adjustment of this portion, however, there are some difficulties; for if we extend it straight across from the lower end of one lateral portion to the other, it would prevent the flexion of the thighs, and then again if we arch it up over the thighs it would cross the body above the umbilicus and very materially interfere with the clothing at the waist. And to cross behind the body would be still more objectionable, as the patient would then have to lie upon it and it would be more difficult to put it on and take it off; so it must take a somewhat tortuous course and cross in front, by avoiding those places where its presence would be objectionable. This is accomplished by having the lower portion turn sharply upon the lateral portion which it is to follow a short distance and then arch in over the flexed thigh and then depress to, or very near, the pubis, to some extent, following the fold of the groin in the direction of Poupart's ligament and as close as possible, having in mind that when the finished brace is applied no part of the frame touches the body, but lies very close to it at all points.

The upper portion of the frame rests by its central portion upon the center of the chest pad, to which it is secured by a double acting joint so that the pad may adjust itself to the chest.

The lower portion of the frame is prevented from touching the body and given a fixed point by an apron made of two thicknesses of canvas from two to four inches wide, according to the size of the brace, between the layers of which a few whalebones have been inserted vertically to prevent rolling. The apron is secured to the lower extremities of the lateral portions of the frame by its ends, and at such an angle that its direction from its attachment toward the center shall be downward, or, in other words, the upper margin of the apron at its attachment shall be the longer one, otherwise the tendency will be for the apron to slide up across the center of the abdomen. This apron should be just long enough to keep the lower part of the frame from touching the body. If properly adjusted it will pass across the lower part of the abdomen very close to the pubis, and upon each side will include, and remain below, the anterior superior iliac spines which constitute the lower fixed point of the frame.

To complete the brace of simple form it is only necessary to attach the second apron or back band. This second apron, which is to extend from one lateral portion of the frame across the back to the other, is to be also of double thickness made in shape to fit any angular deformity. It should be from three to six inches wide without whalebones. One end is to be permanently fastened to one lateral portion of the frame, at a position opposite that portion of the spine to be supported; the other end is to be provided with two or three straps with buckles with which to buckle it to the opposite lateral portion of the frame. Thus completed, we have a spine brace of the simplest possible construction, the smallest amount of material, and at the same time providing for the fixation of the three points relative to each other, in a most positive and efficient manner. The upper front part of the chest, the pelvic bones below and the weaker portion of the spine behind are retained in relative position to each other with positive certainty. Positive, because these are parts of the framework of the body that have a certain relative stability to each other, and between which all of the deformities in caries of the spine in this region occur. These are the points, and the only points, where definite and reliable resistance to deformity can with certainty be applied and maintained.

In regard to the mechanical adaptability of the different parts to the purpose for which they are designed, I will speak separately.

The frame as just described is identical with the first one that I made three years ago. While I have experimented considerably, I have not in any respect changed the design originally made for the plain brace. All that I can say of it is favorable; there are comparatively no objectionable features, while there are a few that are highly commendatory. It is very light, strong, rigid, simple of construction, easily changed in shape, composed of one piece, and it is as much out of the way as it is possible to have anything that can claim the name, spine brace. It can be readily constructed by any common blacksmith at the cross roads, which is no small consideration from an economical point of view.

The small canvas apron that crosses the pelvis shrinks and molds itself over and around the anterior spines so that a most satisfactory support for the lower end of the brace is secured, capable of resisting any force that may be required either continuous or intermittent, and without producing excoriations or large callosities. The difference between the plump or flat abdomen in the adjustment of the lower fixation is of no importance; even with the very fat there is less to contend with this, than with any other of the forms of lower fixation with which I am acquainted. This small apron, so called, which is little more than a strap, is all that can be required and comparatively speaking it is *multum in parvo*.

It is now about six years since I adopted the chest pad to support the upper part of the column. Why it had not been used, fairly and squarely before, I did not know. I could neither find that it had been used simply and alone, nor any reason why it had not been. To me it seemed perfectly feasible, and from an anatomic standpoint, eminently proper. I therefore determined to try it and, if possible, find out why it was in all corrective and retentive appliances for Pott's disease, that this particular region, the center and upper part of the chest, was universally avoided.

I began by using a small pad to which I secured the upper ends of the parallel uprights that support the back pads of the common form of brace. I found that the small pad was sufficient and comfortable, and as far as I could observe there were no ill effects from its use. Consequently, when I came to design the present brace, the chest pad was no experiment. It had already, in my hands, proved to be efficient and satisfactory. I have now used it on this brace for nearly three years, and in a great variety of cases, old and young, and in no single instance have I been able to observe the slightest deleterious consequences. There is no complaint whatever, and no local changes to be seen. I am, therefore, most emphatically of opinion that the proper place to secure and adjust the upper anterior fixation in spine brace is the upper part of the chest when the disease is low enough to permit. I do not believe that there is any

tendency to flatten or distort the contour of the chest; even the active rachitic patient tolerates this pressure without the slightest local change. Neither is there the slightest impediment to respiration. Relatively, the chest is the proper place, as suitable leverage can be obtained there and anatomically it is rigid and the effect of counter pressure is direct and reliable through the bony framework to the diseased portion and entirely independent of any muscular action whatever; and clinical experience thus far, shows that any required degree of pressure is tolerated with comfort, leaving perfect freedom of movement to the shoulders, a condition of things quite unusual in spine braces.

The back band that crosses the back at the seat of the disease, from one lateral portion of the frame to the other, furnishes, in my opinion, the best possible retentive force. The distribution of pressure over a large surface is an advantage. It is tolerated with perfect comfort. It does not induce pressure atrophy or excoriate. Pressing as it does, firmly upon the angles of the ribs as well as upon the spines, its influence to prevent or correct rotation or lateral deviation is far more than would at first sight be appreciated and when combined with some of the accessories which are to be described, this particular resistance to rotation and lateral curve or deviation becomes most effectual. The firm unyielding character of the support and the great degree of force in the direction of correction that can with comfort be tolerated is surprising. With a firm adjustment of this brace, bringing proper tension upon the gently curving chest pad, and bringing the pelvic strap or apron securely against the iliac spines and with the firm application of the back band to the full width of the back, exerting pressure upon the ribs as well as the spines, there is no tendency whatever, in the average cases, for any body movements to take place, such as the rotation of the upper part upon the lower, deviating to one side or the other. The support is practically perfect, maintaining equal poise and suspending all voluntary effort to sustain equilibrium and the erect attitude.

The foregoing description of the brace, together with the description of its applicability, refers only to the brace in its simplest form and to diseased conditions of average severity with but moderate deformity.

The brace, however, is susceptible of many modifications and the addition of many accessories to meet the requirements of varying diseases and deformities, without losing the original principles of construction.

The most simple modification which changes the shape of the frame is the substitution of a pad over the pubis and lower end of the rectus muscle, similar in construction to the chest pad, to take the place of the canvas apron at that point. The frame is then changed so that the side portions, just above the crest of the ilium, turn forward and inward, to follow nearly the fold of the groin, and to meet in the center over the pubic pad, and to which it is attached by means of a joint that will permit of a racking motion only; two staples, an inch or two apart, answer very well. This modification of the frame does away with that portion that passes down to the space above the great trochanter. This simple form is all that can be desired as a convalescent brace. It is light, easy, inexpensive and very efficient, and the pubis and tissues immediately above it tolerate the pad pressure remarkably well.

When it is desirable to fit this brace to a patient who has a tendency to a lateral inclination it should be provided with three pads, one above and one below on the concave side and the other in the middle of the convex side. The one below should be round and hung loosely on the lower end of the frame, so as to rest in and adjust itself to the space described above the great trochanter. The upper pad should rest just as close to the axilla as practical, the frame to be modified so as to support it. It may be arranged transversely or vertically. I usually use at this point, long or oblong pads. The middle pad should be long and attached, with its long axis vertical to the lateral portion of the frame at the place where the pressure is to be exerted.

As much retentive and corrective force may be applied in this way as the patient can tolerate. Where great need exists for lateral retentive force, it is advisable to add crutches to the brace. The crutches can be made a part of the frame, and adjusted from below by raising or lowering the entire frame, which can be done within short limits, or, what is better, have the crutches supported by a separate piece made adjustable upon the lateral portion of the frame. Where this lateral method is adopted it is necessary to have the back band secured by straps and buckles upon each side. Where the crutches are added it is also necessary to attach a supporting band at the lower end of the frame to carry the crutches and their superimposed weight. A strong webbing strap, buckled across the lower part of the back or sacrum from the lower extremity of one lateral portion of the frame to the other, answers this purpose exceedingly well.

Any required degree of support is easy to bear and is unyielding. It is by far the best crutch support with which I am acquainted. Taken together with the little pelvic apron that crosses in front it embodies the principle which is in the support adopted by the color bearer, in carying the heavy pole and flag. Pads at the lower extremities of the lateral portions of the frame are advisable where the supporting strap is applied, although not strictly necessary where the frame is well made and rigid.

Where there is much compensatory lordosis, protrusion of the lower ribs, or a very prominent abdomen, an apron of proper dimensions should be strapped across the front of the abdomen at the place required and with the required tension. Occasionally it is desirable to include the whole front of the body in such an apron. In some cases where the body is thin and the spines prominent at the seat of the disease and deformity, it is advisable to provide the back band with two pads, to rest one upon each side of the spine. These pads should be secured to the back band, made wide enough to extend from the spines of the vertebræ to the angle of the ribs and as long as the band is wide. They should be made as hard and as smooth as practical by stuffing them with cotton or wool, or make them primarily of folded blanket.

To make the frame for any given case it is always advisable to first make a frame of soft iron, or copper wire, of a size that can be readily bent with the fingers, should be selected. The patient should be placed lying on the back, with the body in the position in which it is to be retained, and the wire bent to fit the body just as the finished frame should fit. It is best to adjust the wire across the lower part of the body first, and the ends will lap across the top of the chest.

where the lapped ends are to be secured by winding them around each other, or winding with a string; the former is the best plan. This wire frame which can be made exact in shape, furnishes the artisan perfect lines for the construction of the finished steel brace.

WHEN SHALL HYSTERECTOMY BE PERFORMED IN PUERPERAL SEPSIS?

Read at the Mississippi Valley Medical Association at Detroit, Sept. 3, 1895.

BY BAYARD HOLMES, B.S., M.D.

PROFESSOR OF THE PRINCIPLES OF SURGERY IN THE COLLEGE OF PHYSICIANS AND SURGEONS OF CHICAGO.

CHICAGO.

It must be admitted by all observers that too many women die of puerperal fever, even in these antiseptic and aseptic times. Curetting and irrigation with all their modifications are not always effective. Infection gets beyond the reach of the curette. The interior of the uterus becomes clean and relatively well, but the sepsis goes on. In the treatment of infected wounds, one of the first indications is the removal of the infected tissues. Hysterectomy alone in certain cases of puerperal sepsis meets this indication. It is the purpose of this paper to show when hysterectomy should be undertaken for this disease. Incidentally the frequency of the disease and some points in its pathology are treated.

I.—FOUR CASES OF PUERPERAL SEPSIS TREATED BY THE AUTHOR BY FOUR DIFFERENT METHODS.

Case 1.—Curetting and Irrigation only—Death.—The patient was a multipara 26 years old. She came from an Irish family and had had tubercular disease when a child. She was confined in a barn by a competent physician with no other person about to help him. There was violent post-partum hemorrhage which yielded to nothing, except the introduction of the hand into the uterus and slow removal of the placenta. This operation was done without help and without chloroform. Sepsis appeared almost at once. The uterus was carefully curetted several times and irrigated at frequent intervals. In spite of everything the sepsis continued for seven weeks and the patient died of pulmonary infarction at the end of that time.

Case 2.—Septic Peritonitis—Double Salpingectomy—Death.—This patient had a history of gonorrhea after the birth of her first child. She was 35 years old and had suffered frequent attacks of "pelvic inflammation." She had a second child three years ago, the birth of which was followed by sepsis. She was confined to her bed three months. She had an abortion performed on a three months fetus four weeks ago. This had been followed by a pronounced sepsis. The uterus had been curetted carefully by a competent physician and twice packed with iodoform gauze for six hours each time. On examination, March 10, 1895, I found her temperature 104.5. The pulse was 140. The respirations were rapid and constrained. The abdomen was tympanitic. Vomiting had been almost constant for three hours. The bowels had resisted all attempts to move them. A large area of dullness could be made out in the right inguinal region. The uterus was tipped over to the left. The right pelvis was filled with a doughy mass. The extremities were cold. Under these circumstances not much could be expected from operation, yet nothing could be gained by other treatment. The abdomen was therefore opened. The right pelvis was found to be a great abscess, in which the greatly distended and infiltrated tube was found. The left tube was also full of fluid (old pyosalpinx) and was removed. The uterus was almost exactly the normal size. It was not edematous and was left in the pelvis. Both sides of the pelvis were drained with gauze tampons through the abdominal wound. The patient rallied well after the operation and did well for five days. She gradually grew worse then, had several attacks of phlebitis and died of pulmonary embolism nine days after the operation. There were no symptoms of peritonitis after the operation.

Case 3.—Curetting—Removal of Right Tube and Ovary—Vaginal and Abdominal Drainage—Death without Peritonitis.—This patient was 30 years old. She had been confined five weeks before examination. Symptoms of sepsis appeared on the fourth day and continued of a low grade. There was a renewal of septic symptoms on the tenth day after sitting up and walking a little. When I examined her, April 20, 1895, she was slightly tympanitic, the pulse was 112 and the temperature 101. She had no appetite and had vomited a little once or twice. The bowels were easily moved with enemas and mild laxatives. The vagina was edematous but the uterus was well contracted. The right side of the pelvis, as felt through vagina, was firm and hard, the left side somewhat less so. The patient was carefully watched for three days while the uterus was almost constantly irrigated and twice curetted, and packed with iodoform gauze. All the symptoms grew steadily worse, chills occurred twice a day with a slow rise of temperature and tympanitis. This led me to make abdominal section. The right tube was found as large as the thumb, red and infiltrated. It was removed with the right ovary. The uterus was firm, hard, small and not at all edematous. I did not remove it. The left tube was normal and was not disturbed. The right pelvis was drained by means of a tube from the abdominal wound above into the right side of the vagina and packed about with iodoform gauze. After a few days of improvement the patient grew gradually worse and died of septic phlebitis *without peritonitis* eight days after the operation.

Case 4.—Septic Peritonitis—Removal of both Tubes and Ovaries and the Uterus.—The patient was a multipara 32 years old. The labor occurred six weeks ago and was uncomplicated. A midwife, noted for her train of puerperal fever, was in attendance at the time. On examination, May 14, 1895, I found a temperature of 104 degrees and a pulse of 124. The abdomen was tympanitic and greatly distended, vomiting was almost constant. There was great tenderness over the whole abdomen. When the patient was on her back, both flanks were dull; when turned on her side, the left flank became tympanitic. In making a vaginal and bimanual examination, extensive infiltration of the right side of the pelvis could be made out. The uterus was about the size of a uterus when four months pregnant. Operation was undertaken for the removal of the septic material twelve hours later. After the proper preparation of the patient, she was chloroformed and placed in the Trendelenburg position, and the abdomen opened. On the first incision, about a pint of sero-purulent fluid slowly poured out. As the right tube was grasped, another gush of pus came out. This broad ligament was large and edematous. It was separated from its adhesions to the pelvic wall and tied off. The uterine artery was ligated and the uterus was then amputated from before backward, and from right to left with a dull knife. After ligating the other uterine artery and the left ovarian artery, the cervix was closed upon itself by two rows of catgut sutures; one buried in the cervical tissues and one superficial in the peritoneum. All hemorrhage was stopped, the abdomen carefully washed out with several pitchers of sterilized hot water and the pelvis drained with a large iodoform gauze drain coming out at the lower part of the abdominal wound. The rest of the abdominal wound was closed with two rows of sutures. In spite of the fact that this operation was done in a hovel, and in spite of the additional fact that a factory next door burned down three days after the operation, making it necessary to lay the patient for an hour on the sidewalk in front of the house, she made a most excellent and rapid recovery and was out of bed in five weeks.

The pathology of this case is extremely interesting. The section of the uterus measured 4.5 centimeters in anterior posterior diameter after hardening in formalin. The transverse diameter just below the opening of the tubes, was 7.75 centimeters. The diameter of a section of the ovarian ligament was 2.5 centimeters on the right side and a little less on the left side. There was an abscess in the right ovarian ligament with partial necrosis of its posterior wall. This abscess was about a centimeter in diameter. There were two other abscesses about the same size in other parts of the ligament. On inspection of a thin transverse section the interior of the uterus was found lined with a black necrotic mass. Pigmentation extended outward from the mucosa about a centimeter in all directions. The whole of the right broad ligament was of this same dark color. On microscopic

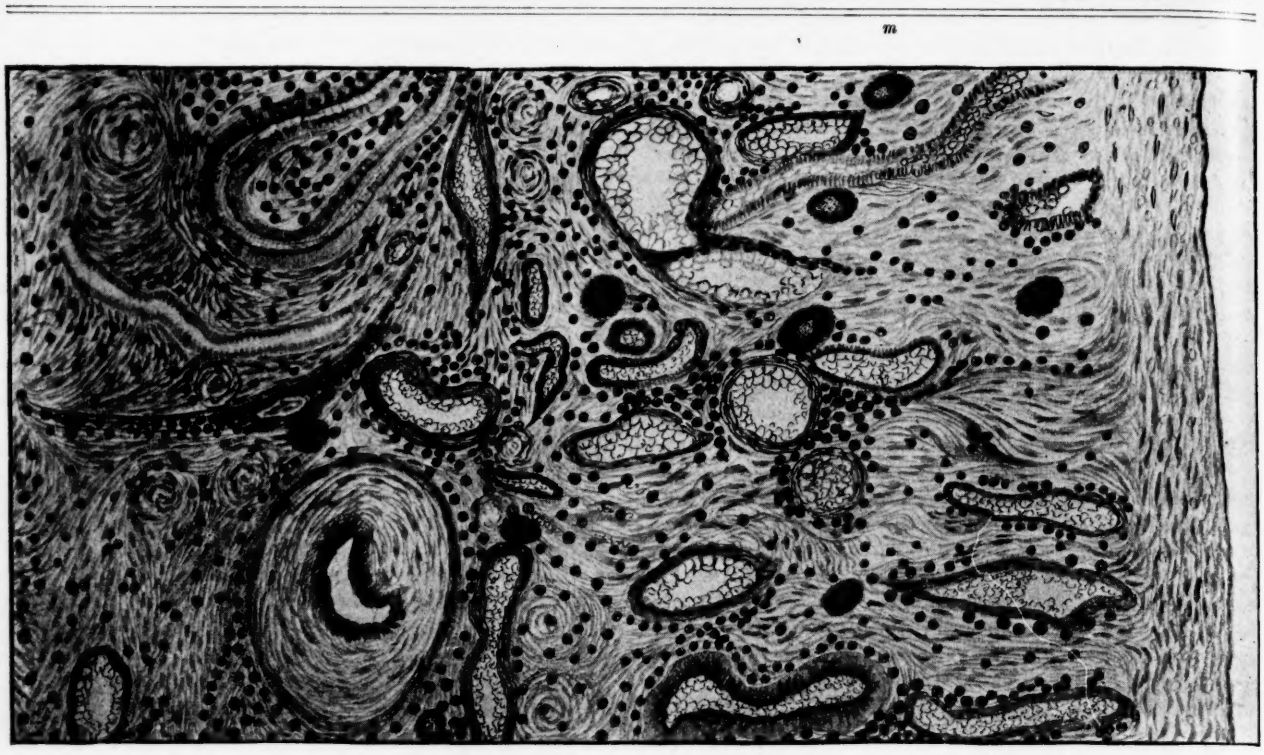


FIG. 1.—A highly magnified section of the body of the uterus, partially schematic; *p*, the peritoneal surface; *a*, *a*, *a*, obliterated blood vessels with the perivascular lymph spaces filled with pus corpuscles (*c*) and leucocytes; *m*, *m*, mastzellen. The other end of the section showed a reproduction of the mucosa throwing off a necrotic mass. The mucosa was everywhere surrounded by groups of pus corpuscles.

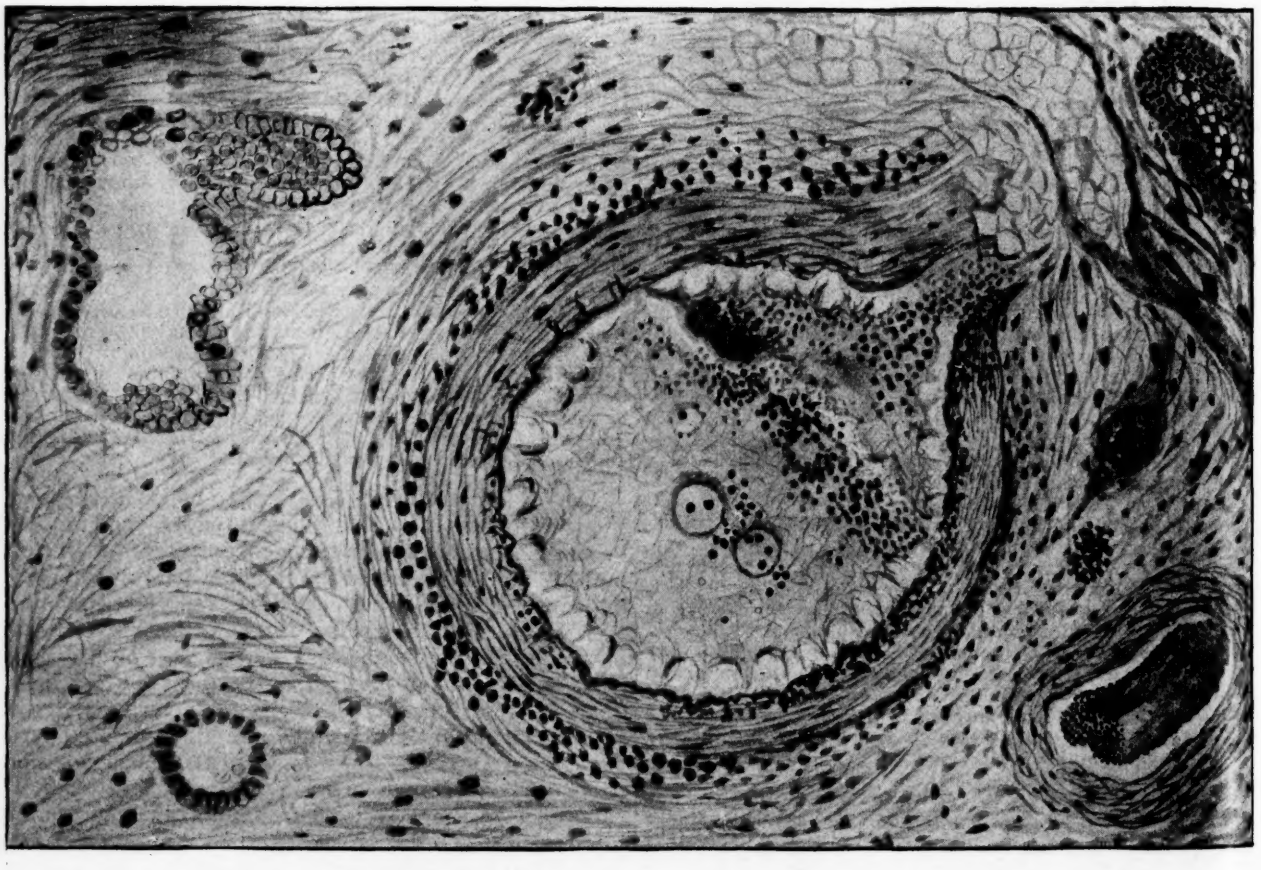


FIG. 2.—Section of the right broad ligament showing an advancing thrombus in an artery coming out from an obliterating thrombus in a branch, (*a*) marked perivascular infiltration (*b*) and complete thrombosis of accompanying vein (*c*).

examination the mucosa was found in a condition of rapid reproduction. In many places, as shown in the drawing, repair was nearly complete. Yet everywhere the epithelial cells and mucous glands were surrounded with groups of pus cells. The perivascular lymph spaces in the musculosa from the mucosa outward were in many places crowded with pus corpuscles, but in no place was an abscess of any size found. *Mastzellen* were very abundant in some parts of the musculosa, but not very often found where the pus corpuscles were most numerous. Many of the blood vessels of the uterus were entirely obliterated with thrombi and these thrombi were sometimes crowded with pus corpuscles. In one section of the broad ligament a small blood vessel was found partially occluded by a thrombus which had gone out from a small branch of the artery. The drawing shows the condition very well. The obliterating thrombus in the branch is full of pus corpuscles. The advancing thrombus in the trunk has many such pus corpuscles between the intima and the thrombus. The wall of this artery is invaded on one side. Some such blood vessels were entirely obliterated. Many sections of the tube on both sides showed no accumulations in the tubes, no destruction of the *arbor vitæ* of the tube and no considerable inflammation of the peritubal tissues.

The condition may be described as a suppurative endometritis, suppurative perivascular lymphangitis of the uterus, of the ovarian ligaments and of the broad ligament. Obliterating thrombosis of uterine and peri-uterine blood vessels. Multiple abscess of the right ovarian ligament. Multiple peri-uterine peritoneal abscesses, adhesive and limiting peritonitis.

II.—THE RESULTS OF CURETTING IN THE HANDS OF ITS ADVOCATES.

Leopold (*Dritter Beitrag zur Verhutung des Kindbettfiebers*). *Arch. fur Gyn.*, vol. XXXV. p. 149) considers 1,369 cases of labor attended 1888 and out of these 15 died, only two of them sepsis.

Braun-Firnwald (*Ueber antiseptische Excochleatio uteri bei Endometritis puerperalis. Arch. fur Gyn.*, vol. XXXVII, p. 452) made a study of 7,600 cases of labor in a period of two and half years, 1887-1889, curettement was performed in 101 of these cases. Out of these 101 cases, 96 recovered and 5 died. Beside these five deaths there were forty other deaths.

The following tables show the causes of death:

12 cases from March 1, to December 31, 1887.

Placenta previa, hemorrhage	3
Rupture of the uterus	2
Suppurative nephritis and cystitis, old tuberculosis	1
Phlegmon of the foot, pyemia	1
Eclampsia	1
Pericervical abscess	1
Puerperal sepsis	3
	—12

During the year 1888, diffuse peritonitis from rupture of the gall bladder during labor	1
Rupture of cervix uteri	3
Osteomalacia, Cæsarean section, degeneration of liver and kidneys without asepsis	1
Apoplexy, Cæsarean section, living child	1
Eclampsia, (1 hemorrhage nephritis)	5
Osteomalacia, Cæsarean section, sepsis	1
Rachitis, Cæsarean section, sepsis	1
Puerperal sepsis	8
	—21

Jan. 1 to Sept. 30, 1889. Placenta previa, hemorrhage	1
Rupture of the uterus	2
Chronic nephritis	1
Puerperal sepsis	3
	— 7
Total deaths	40
Puerperal sepsis	14
Per cent. of deaths from sepsis of all deaths	35

It appears that puerperal sepsis was the greatest cause of death even in the hands of a careful obstetrician. The curetting of the uterus was not an unfailing remedy, as the following epitome of the histories of the five cases that died after curetting shows:

1. Normal labor, slow infection on fourth day. Curetting. Peritonitis on eighteenth day. Temperature 40 degrees, vomiting, delirium. Death on thirtieth day.

Autopsy: mild puerperal endometritis; uterine lymphangitis; general purulent peritonitis; hemorrhagic left pleuritis. Observations. Hysterectomy ought to have been performed on the eighteenth day.

2. Normal labor. Chill and rapid infection on the fifth day. Intra-uterine irrigation without effect. Curetting on the eighth day, no avail. Sudden onset of vomiting and distension, thready pulse. Death on the tenth day.

Autopsy: slight endometritis; double salpingitis; general suppurative peritonitis with large exudate. Observations. Hysterectomy ought to have been performed on the eighth day.

3. Normal labor. Fever on the second day. Bad smelling lochia. Curetting on fourth day with removal of decidua no avail. On the twelfth day distension, vomiting. Death on the seventeenth day.

Autopsy: endometritis; uterine phlebitis; diffuse suppurative peritonitis. Observations. Hysterectomy ought to have been performed on the thirteenth day.

4. Normal labor. Chill on the morning of the fifth day. Temperature 39.2 degrees. Intra-uterine irrigation, no avail; diarrhea. On the ninth day, curetting, no avail. On the thirteenth, symptoms of phlebitis. Death on the twenty-first day.

Autopsy: slight endometritis; general peritonitis. Observations. Hysterectomy ought to have been performed on the eighth day.

5. Normal labor. On the fifth day slow infection. On the sixth, temperature 39 degrees. Curetting, normal temperature the two following days. On twelfth day chill, temperature 40 degrees; fresh blood in lochia. Intra-uterine irrigation; iodoform tamponade. No avail. On nineteenth day large hemorrhage from uterus. Death on twenty-ninth day.

Autopsy: endometritis; subsequent septicemia; acute anemia. Observations. Hysterectomy ought to have been performed on the nineteenth day.

In the 101 cases of sepsis in this series, the following table shows the time of onset of infection as indicated by the rise of temperature, or by the chill, and interpreted by the subsequent history:

On the day of labor	1 case
1 day after labor	1 "
2 " " "	10 "
3 " " "	14 "
4 " " "	30 "
5 " " "	21 "
6 " " "	11 "
7 " " "	6 "
8 " " "	3 "
10 " " "	2 "
11 " " "	1 "
12 " " "	1 "
Total.	101

We see, then, that in 101 cases of sepsis treated by Braun-Firnwald, curetting failed five times and in these five cases there is every reason to believe that hysterectomy would have been effectual in saving the life of the patient.

III.—PUERPERAL SEPSIS IN CHICAGO, NEW YORK, AND BROOKLYN.

In the city of Chicago during the years 1881-1894, 2,127 deaths from puerperal fever were reported, or about 0.9 per cent. of all deaths. This is computed to be about 3.5 deaths to each 1,000 births. In the year 1894, 214 deaths were reported from the city of

Chicago as due to puerperal fever, while many other reports, under different heads, would indicate a still larger death rate from this cause. It is estimated that more than half of all confinements in the city are in the hands of midwives.[1]

The following table is copied from the report of the Department of Health of Chicago and gives in the first column the year, in the second column the number of deaths reported during that year from puerperal fever, in the third column the per cent. of these deaths of the total mortality, and the fourth column the number of deaths from this cause to the 1,000 births reported:

Year.	No. deaths reported.	Per cent. of deaths.	No. deaths per 1,000.
1881	144	1.03	7.31
1882	107	0.81	5.16
1883	152	1.32	7.08
1884	108	0.86	4.57
1885	107	0.86	4.23
1886	126	0.92	4.41
1887	149	0.91	5.16
1888	186	1.18	6.10
1889	137	0.81	3.65
1890	166	1.76	3.55
1891	176	0.63	3.64
1892	174	0.66	3.13
1893	181	0.67	3 31
1894	214	0.89	3.22

In New York for the six years ending May 31, 1890, there were 250,359 deaths, of which 116,126 were females; 2,236 died in the pueperal state and 1,250 of these deaths were due to puerperal fever.

In Brooklyn[2] during the same period, there were 112,467 deaths, 53,866 being females; 867 deaths were in the puerperal state and of these 462 were due to puerperal sepsis.

The question of treatment of puerperal sepsis by hysterectomy is therefore one which vitally concerns at least 214 persons a year in Chicago, 208 persons a year in New York city, and 78 persons a year in Brooklyn.

IV.—ANALYSIS OF THE CASES OF DEATH FROM PUERPERAL SEPSIS OCCURRING IN 6,635 CONSECUTIVE CONFINEMENTS.

Perhaps the relation of puerperal sepsis to the normal uninfected puerperium can be best understood by making a study of the work of some of the obstetrical hospitals under the best management. For this purpose I first call your attention to the Charitè, of Berlin. All my information comes from the official reports in the *Charitè Annalen* for the years 1889–90, 1890–91 and 1891–92, 1892–93. In these four years, 6,635 women were confined, with 79 deaths from all causes. Of these deaths, thirty-three resulted from puerperal sepsis. In order to fully understand these cases I have made brief abstracts of the histories and the pathologic findings at postmortem. These cases were treated by Hensoldt,[3] Schwarze, Hünermann and Hochsetter, during the four successive years mentioned, each having the clinic a year at a time.

During the year Hensoldt had 1,626 confinements, covering a part of the calendar years 1889–90. There were sixteen deaths, that is to say a death rate of 0.61 per cent. This death rate was distributed as follows: puerperal fever, ten; heart failure, two; eclampsia, two; pneumonia, one; hemorrhage, one; total, sixteen.

[1] Report of Commissioner of Health, 1885, pp. 263.
[2] Billings, John S.: Vital statistics of New York city and Brooklyn. U. S. Department of the Interior. Washington, 1894. 4°.
[3] Hensoldt: Charité Annalen, sixteenth year, 1891, p, 256, et seq.

There were sixty-two cases of puerperal fever during the year 1890–91. Some cases were insignificant. Among these were three cases of unknown origin, two cases of puerperal endocarditis, two cases of mild phlegmasia alba dolens, eleven cases of parametritis, three cases of diphtheria of the external genitals, one case of inflammation of the sacro-iliac joint, and one case of tuberculosis of the lung. In fourteen cases the gonorrheal condition of the flow was demonstrated. In one of these cases puerperal fever followed labor. One ovarian tumor was present in a secundipara. Syphilis was present in 63 cases out of the 1,626, but we are not told how many of these were included in the 62 cases of sepsis.

The total number of infected cases among these 1,626 confinements was 62, being 3.81 per cent. This compares very favorably with the records of the hospital during the previous years. In the twelve months preceding, the hospital year 1888–89, the per cent. of infected cases was 2.31. In the year 1887–88 the rate of infection was 2.50 per cent., and in the year 1886–87 it was 2.31. The number of deaths from infection during these four terms of twelve months each was .61 per cent., .36 per cent., .37 per cent. and .55 per cent. respectively. Nine of the ten cases that died under Hensoldt's care I have carefully abstracted and added a line of observations. They are as follows:

1. Normal birth, chill on fifth day, scarlet-fever-like eruption over whole body, marked gastric symptoms, stinking lochia, urine free from albumin. The eruption disappeared on the tenth day, but the fever continued and a slight systolic murmur appeared with mild bronchitis. The spleen became enlarged and the abdomen distended. On the fourteenth day, emboli under the skin showed themselves, and on the fifteenth day collapse and death.

Autopsy: gangrene of the skin of the right index finger: multiple infarcts of the left arm; fatty degeneration of the heart muscle; mitral stenosis; mitral endocarditis; edema and red hepatization of the lungs; hyperplasia and infarcts of the spleen; nephritis; hepatitis. Observations. This case could probably have been saved by hysterectomy performed on the tenth day or before the fourteenth.

2. Normal birth, chill on the third day, systolic murmur on the eighteenth day, delirium on the twenty-first day with symptoms of compression of the brain, exophthalmus on the twenty-third day, death on the twenty-fourth day.

Autopsy: purulent meningitis of the base, endocarditis and pericarditis; dilatation and hypertrophy of the heart; right circumscribed pleuro-pneumonia, edema of the lungs; slight parenchymatous nephritis; metritis; endometritis; pyelitis; cystitis. Observations. This case might have been saved by hysterectomy performed on or before the eighteenth day.

3. Normal second birth, chills on the third day, bad smelling lochia, peritonitis on the fourth day, death on the seventh day.

Autopsy: general fibrinous peritonitis: diphtheritic endometritis; phlegmonous parametritis; pulmonary edema; parenchymatous myocarditis; parenchymatous hepatitis; hyperplasia of the spleen. Observations. This case could probably have been saved by hysterectomy performed on the fourth or on the fifth day.

4. Normal third birth, on the third day stinking lochia and high fever, evidence of tuberculosis in apices of both lungs, on the tenth day a venous thrombus on the inner side of the right knee; on the twelfth day this thrombus was opened and discharged pus, dyspnea this day with bloody expectoration; on the fourteenth day somnolence, thin brownish sputa, right pleuritis; on the sixteenth day sudden death in collapse.

Autopsy: endometritis; pericarditis pleuritis; parenchymatous nephritis; hepatitis; splenitis; old phthisis; suppurative right pneumonia. Observations. This case could perhaps have been saved by hysterectomy performed on the tenth day with coincident removal of the thrombus in the leg.

5. Primipara 19 years old, normal labor, followed by rapid pulse, 92–120; membrane appearing on the vagina on the

third day; on the sixth day high fever with foul lochia, pain on the right side of the uterus; on the eleventh day chill, high fever and severe general symptoms; on the fourteenth day vomiting, with abdominal pain and distension, on the fifteenth day continued vomiting, increased tympany, diffuse bronchitis, very small and rapid pulse and rapid respirations; on the twentieth day the left shoulder became swollen and painful, respiration more rapid, right-sided pleuritis; on the twenty-first day emboli were observed under the skin of the back and beginning bed sores, death on the twenty-sixth day.

Autopsy: puerperal fever, endometritis diphtheritica placentaris; adhesive and encapsulated suppurative peritonitis; general fibrinous; purulent and ichorous peritonitis; hyperplasia of the liver; endarteritis of the aorta; edema of the lungs. Observations. Hysterectomy was indicated on the fourteenth day. It is uncertain what the membrane was. If diphtheria, it is a question to be studied.

6. The eighth birth of a woman 45 years old. Repeated attempts had been made by two physicians to apply the forceps before admission to the hospital. The high operation was performed and a large child (58 c.m. long, 5320 g. weight) easily delivered. The placenta was removed on account of hemorrhage and atony of uterus. The patient vomited almost continually, the pulse was very rapid (116–124) the temperature high and the lochia offensive. On the eighth day irrigation of the uterus and a second tamponade of uterus; the seventh day after this there was a chill, the temperature rose and the lochia continued offensive. The uterus did not contract. On the fourteenth day painful dyspnea, diffuse bronchitis, small pulse (108–120) frothy expectoration. Death on the nineteenth day.

Autopsy: puerperal sepsis; diphtheritic endometritis; parenchymatous myocarditis; fatty degeneration of the myocardium; edema of the lungs. Observation. Hysterectomy was indicated on the tenth or eleventh day, and would doubtless have been effective in saving the life of the patient.

7. Primipara, 31 years old. Placenta previa, hemorrhage and delivery of a dead child in the tenth month (51 c.m. long, 2680 g. wt.); on the third day rise of temperature; on the fifth a chill and all the ordinary symptoms; on the eighth day delirium, collapse, and on the tenth day death.

Autopsy: diphtheritic placental endometritis; nephritis; hepatitis; parenchymatous gastro-adenitis; hyperplasia of the spleen; multiple suppurative and lobular pneumonia; hypertrophy of the heart; fatty degeneration of the myocardium; chronic endocarditis. Observation. Hysterectomy was indicated on the eighth day and would probably have been effective in saving the life of the patient.

8. Placenta previa. Last menstruation in October, 1889. Jan. 25, 1890, to end of March repeated hemorrhages, treated the latter part of the time with vaginal tamponade. On March 27 she entered the hospital in extreme anemia. Temperature 38.5, rapid pulse. The cervix admitted one finger. The fundus stood at the umbilicus. Labor pains. Antiseptic tamponade of the cervix. Anesthesia after four hours and removal of the macerated fetus and succenturate placenta. Curettement of uterus. On the next day temperature 40 and over, pulse 149, vomiting; on the second day delirium. The lochia was not offensive. On the fourth day hyperesthesia with full temperature and considerable rise of pulse rate. Death on fifth day. Autopsy: Puerperal sepsis; diphtheritic endometritis of the cervix; beginning right hypostalic pneumonia; edema of the lungs; hyperplasia of the spleen; parenchymatous nephritis. Observation. This is a case of rapid infection. Hysterectomy might have saved the patient if performed on the second or third day.

9. Primipara, 21 years old, delivered of a small child (42.5 c.m., 1670 g.) with the forceps. The patient was frail and anemic but had a perfectly normal course until the eighth day. On the ninth day there appeared with severe constitutional symptoms a temperature of 39.9 and a pulse of 132. The slightly bloody lochia became offensive. After irrigation of the uterus the temperature fell on the eleventh day to normal but the pulse remained at 100. On the fourteenth day the lochia again became offensive. A second irrigation of the uterus showed no coagula in the cavity, but as the catheter was being withdrawn the patient went with a sudden spasmodic movement into a deep collapse and died.

Autopsy: puerperal fever with parenchymatous changes in all the organs of the body. Observation: this case shows the dangers of conservative treatment even. There was perhaps no time during the life of the patient that hysterectomy was indicated.

[4] Schwarze: Charité Annalen, seventeenth year, 1892, p. 479.

During Schwarze's[4] service, 1890-91, 1,480 women were confined. Of these fifteen died as follows:

Puerperal fever five; eclampsia six; rupture of uterus two; heart failure one; hemorrhage one; total, fifteen.

1. Second confinement, 20 years old. Two days before admission, chills and fever, with diarrhea. Temperature 39.5, pulse 124, cyanotic countenance, dry tongue, rapid breathing, no cause in lungs. Tympanitis. Rapid spontaneous birth of a living child. The high fever continued after the birth with all the ordinary symptoms. Death in the second week, apparently of edema of the lungs.

Autopsy: puerperal sepsis; general ichorous peritonitis; nephritis; hepatitis; parenchymatous myocarditis; hyperemia and edema of the lungs; hypertrophy of the spleen. Observation. This case of infection before labor was one in which hysterectomy was indicated and would doubtless have been effectual in saving the life.

2. Primipara, 20 years old. Began labor with a distended tympanitic abdomen; pulse 72; no fever. Some pain over Poupart's ligament on the right side; with the use of an enema a free movement was secured. Five days later labor came on and in a few hours of normal labor a poorly nourished living child was born. Immediately after delivery deep collapse, pulse 160. The abdomen tympanitic, painful, shortly all the symptoms of general puerperal infection, and death on the twelfth day.

Autopsy: endometritis and purulent peritonitis: multiple pulmonary abscesses; parenchymatous nephritis and hepatitis; hyperplasia of the spleen. The abdomen was full of brownish pus. The abdominal and pelvic organs were adherent. The appendix showed the scar of an old ulcer. Observation. This seems to have been a case of chronic appendicitis which was perhaps one source of infection. It is uncertain from the history whether or not it was the only source. If it was the only source of infection, it was a case of appendicitis complicating the puerperal state. If this idea is correct, removal of the appendix was indicated.

3. Primipara, 29 years old. On June 17, chill and fever which subsided after a few hours. On June 18, labor pains came on in the night and in a few hours a living child was born. During labor no fever. About one and a half hours after delivery, chill, temperature 40.8 and bilious vomiting. On the morning of the second day after delivery temperature 37.9. A second chill in the afternoon with a temperature of 39.6. The disease continued until June 27 when the patient died, on the ninth day after delivery.

Autopsy: puerperal endometritis; phlegmonous parametritis; phlegmonous myostitis of the right arm; arthritis of the left elbow; hyperplasia of the spleen. Observation. This was a case of rapid infection which called for early interference. It could have been treated on the third day or as late as the fifth day with good hope of recovery by the removal of the uterus and tubes. The history, however, is too incomplete to form the basis of the indication as to time.

4. Primipara, aged 21 years; normal birth. On the fifth day fever and offensive lochia. Temperature and pulse continue high and a membrane appeared in the vagina. Exudation felt on both sides of the uterus. On the seventeenth day all the symptoms of peritonitis and on the nineteenth day death.

Autopsy: purulent endometritis; purulent para-uterine thrombophlebitis; perithrombotic abscesses; fibrino-purulent peritonitis; subinvolution of the uterus; hyperplasia of the spleen; parenchymatous hepatitis; nephritis and gastritis; multiple pulmonary abscesses. Observation. There was abundant time in this case to remove the infection. It should have been done probably on the eighth or tenth day.

5. The ninth confinement of a woman 39 years old, normal birth. Great edema of the lower extremities with large varicose veins. On the fourth day chill, temperature 39, pulse 120. The lochia became offensive. On the fifth day painful thrombosis of both thighs; the region of these thrombi quickly became inflamed. On the labia majora great swelling. Death on the seventh day of cyanosis and edema of the lungs. The thrombi in the legs were in a gangrenous condition.

Autopsy: gangrenous diphtheritic endometritis; parenchymatous hepatitis; hyperemia and edema of the lungs; hyperplasia of the spleen. Observation. This was a case of rapid infective thrombosis. It was hopeless after the fifth day.

6. Secundipara, placenta previa, tamponade after hemor-

rhage and extraction. On the fifth day fever and rapid pulse. On the seventh, edema of the labia extending to the rectum. Diphtheritic membrane on the vagina and cervix uteri. Thrombosis and phlegmonous inflammation of the back and thighs. No chill, no infiltration of the parametrium. Death on the tenth day.

Autopsy: puerperal sepsis; vaginal wounds; diphtheritic vaginitis and diphtheritic inflammation of the cervix uteri; multiple abscesses of the skin; incipient parenchymatous; myocarditis; endocarditis; incipient endocarditis of the aorta; multiple abscesses of the left lung and edema of the lungs; fibrino-purulent and ichorous left pleuritis; nephritis. Observation. This is a case of rapid infection. Hysterectomy might have saved the patient, if performed on the second or third day.

7. Primipara, 21 years old. Delivered of a small child (425 c.m., 1,670 g.) with the forceps. The patient was frail and anemic but had a perfectly normal course until the eighth day. On the ninth day there appeared with severe constitutional symptoms, a temperature of 39.9 and a pulse of 132. The slightly bloody lochia became offensive. After irrigation of the uterus, the temperature fell on the eleventh day to normal, but the pulse remained at 100. On the fourteenth day the lochia again became offensive. A second irrigation of the uterus showed no coagula in the cavity.

During Hünermann's[5] service out of 1,860 cases in the obstetrical department of this hospital, 27 died during the year 1891-1892: eclampsia ten; placenta previa one; tuberculosis of lung one; vitium cordis two; puerperal sepsis thirteen; total twenty-seven.

Beside the thirteen deaths from puerperal fever there were one hundred and forty-four cases of fever, sixteen cases of parametritis, six cases of perimetritis, one case of diphtheria of the external genitals with endometritis, and forty-one cases of severe puerperal infection, with recovery. There were two cases of thrombosis of the femoral vein. Tuberculosis of the lungs was observed in fifteen cases. There was one case of pyonephrosis; ninety cases of syphilis; seventeen children required treatment for gonorrheal ophthalmia.

1. Strongly built woman but poorly nourished. Temperature on admission 39.5. Stupid labored respiration, pulse 132 to 96. Uterus three fingers above the navel. In urine .1 volume of albumin. Three-quarters of an hour after admission spontaneous delivery of a small 28 c.m. child and placenta. Death eleven hours after delivery. Autopsy: exquisite puerperal sepsis. Observation. This was a case hopeless from the first.

2. The eighth confinement of a 33-year-old woman. Rupture of the membranes at time. Three days the mother went about her work until an arm presented. Dilated cervix, contracted uterus. Temperature 39. Cyanosis. Difficult version. Delivery of a slightly macerated boy (51 c.m., 2950 g.). Liquor amnion stinking. Immediately after birth the temperature was 41.7 and the pulse 144. On the next day the typical picture of sepsis, double-sided pneumonia, severe albuminuria, tympanitis, offensive lochia, persistently high fever. Death on the fifth day.

Autopsy: puerperal sepsis; double pneumonia; diphtheria of cervix uteri; diphtheritic endometritis and cystitis; parenchymatous nephritis. Observations. Hysterectomy useless, except on the day of delivery.

3. Third confinement, version and extraction outside the hospital. On the next day dilatation of the abdomen and on the second day temperature 38.6, pulse 96 to 124. Abdomen very tympanitic. Irrigation of the uterus and discharge of clots of blood. The sepsis continued without chills, temperature 40. Frequent and severe dyspnea, obstruction of the bowels, and diffuse peritonitis. On the twelfth day edema of the lower extremities and death on the fifty-fifth day in collapse.

Autopsy: slow puerperal peritonitis, purulent and fibrinous; parenchymatous hepatitis; nephritis and gastritis; interstitial abscesses of the kidney; pyonephrosis; hyperplasia of the spleen and perisplenitis; perimetritis with abscesses; acute endometritis and parenchymatous gastritis. Observations. In this case of slow infection there was abundant time for hysterectomy. It should have been done during the second week at latest.

[5] Hünermann: Charité Annalen, eighteenth year, p. 545.

4. Secundipara, 29 years old. Spontaneous delivery of a dead child before admission to the hospital. On admission temperature 38.8, pulse 120. On the second day vomiting and tympany. On the third day chill. Continued vomiting and tympany of abdomen. Temperature 39.2, pulse 124. On the sixth day petechia over the whole body, icterus, friction sounds on the lower back part of right lung, impure heart's tone, large amount of albumin in the urine. On the eighth day more icterus and death on the ninth day.

Autopsy: diphtheritic endometritis myocarditis; parenchymatous nephritis; hepatitis; hyperplasia of the spleen; icterus. Observations. Hysterectomy would have been effective doubtless on the second day, but not later.

5. Eighth birth, 36 years old, small child (34 c.m., 840 g.). Temperature on admission 39.8. The birth had taken place some hours before. After-birth, which was partly in the vagina, was removed under narcosis and the uterus washed out and tamponed with iodoform gauze. This was removed on the second day. From the second day to the seventh day the temperature was 39. Frequent irrigation of the uterus with 2 per cent. carbolic acid solution. On the eighth day a chill. Temperature 40, pulse 144. Murmur at heart apex. Chills on the eleventh, twelfth, thirteenth, fourteenth and fifteenth days, with temperature between 37 and 40, pulse rapid, unaccountable. On the sixteenth day swelling of the left leg with recognizable thrombus. Death on the seventeenth day.

Autopsy: puerperal fever; endometritis placentaris; suppurative thrombo-phlebitis; syphilitic cicatrices of the kidney; varicosa endocarditis. Observations. This was a slow infection and offered every hope that recovery would have followed hysterectomy on the eighth day.

6. A primipara, 24 years old. Some days before confinement, a chill as the result of attempted abortion. Spontaneous discharge of the dead fetus, (25.5 c.m. 340 g.). Temperature 38.9. On the third day a chill, temperature 39. On the fourth day, after an irrigation of the uterus, three chills. Splenic tumor, vomiting, tympanitic abdomen. Pronounced peritonitis. Temperature 40 until the eighth day. On the ninth day no fever. On the tenth death.

Autopsy: the site of the placenta covered with a grayish-black ichorous mass. The cervix was gangrenous, with two furrows, both on the posterior lip, extending from the vagina to the body. (Marks of abortion.) Puerperal sepsis; general fibrinous and purulent peritonitis; endometritis placentaris; gangrene of the cervix uteri; gangrenous right oöphoritis; recent parenchymatous myocarditis and hepatitis; nephritis; hyperplasia of the spleen; right adhesive pleuritis; purulent thrombo-phlebitis. Observations. This case offered hope of recovery after hysterectomy on the fifth day or earlier. The history is too incomplete to indicate the time of latest hopeful operation.

7. Primipara, 25 years old. Moderate laceration of the cervix, normal birth under midwife. Normal course until fifth day when fever and high pulse came on and continued until the eleventh day. On admission, exudation in right parametrium. Twelfth and thirteenth days normal temperature. On the fourteenth renewed fever, with intermission daily until the eighteenth, then a remittent high fever, pleuro-pneumonia, dyspnea, until death on twenty-sixth day. No symptoms of peritonitis; no chills. Autopsy: puerperal fever, parametritis and perimetritis, multiple and purulent; subinvolution of the uterus, double hydrothorax beginning double fibrinous pneumonia, hepatitis, nephritis, myocarditis, gastritis, right hemorrhagic pyelitis. Observation. This case offered great hope of recovery by hysterectomy on the seventeenth day.

8. Primipara, 20 years old, normal birth of a full-sized boy (52 c.m., 3,000 g.). Distension of abdomen immediately after delivery. An area of duliness appeared on the third day, on the right side of the uterus, as large as the hand. Regular course of sepsis to the eighteenth day, when death ended it.

Autopsy: ichorous peritonitis, endometritis, edema of the lungs, hypertrophy and dilatation of the heart, right pleuritis and right catarrhal pneumonia, nephritis, hepatitis and splenitis. Observation. This case should certainly have been saved by hysterectomy on the sixth day.

9. Normal birth, normal until fourth day. Temperature then 39.5; rapid pulse, abdominal pain; irrigation of uterus: on seventh day child, with temperature 40. Digital removal of a large piece of placenta; iodoform tamponade; frequent irigation of the uterus; on the fifteenth day evidence in urine of nephritis; on the twentieth day pupillary hemorrhage of right eye; on the thirty-second day edema of the lower extremities; on the forty-eighth day death.

Autopsy: puerperal fever, parametritis with right throm-

bo-phlebitis, bacterial nephritis, cerebral thrombo-phlebitis multiple. Observation. This case could have been saved by hysterectomy on the fifteenth day and perhaps later.

10. Spontaneous birth of an average child (41 cm. 1320 gr.) Considerable hemorrhage, manual removal of placenta. High fever during the first day. On the second day infiltration of right lung, on the eighth day of the left lung. Double pleuritic effusion. On the tenth day peritonitis and death.

Autopsy: uterus bicornis. Endometritis, universal purulent peritonitis, double fibrinous pleuritis, partial pulmonary atalectasis. Observation. It is hard to say whether or not hysterectomy would have helped this case.

11. Normal birth on the third day of a child; temperature 38.6, pulse 96; on the fourth day a chill, temperature 40.9, pulse 120. On the tenth day a pyemic abscess of the left thigh, many other abscesses; death on the thirty-eighth day.

Autopsy: puerperal sepsis, pulmonary edema, multiple phlegmons, diabetus sacralis, marasmus. Observation. It seems that hysterectomy was indicated on the sixth day.

12. Normal labor; sepsis began on the fourth day, death on the fourteenth day. Poor history.

Autopsy: puerperal sepsis, ichorous endometritis, thrombosis plexi pampiniformis, phlegmonous oöphoritis, diffuse fibrinous peritonitis, fibrinous and purulent left pleuritis. Observation. This case was one very strongly demanding hysterectomy. It should have been done before pleuritis came on.

12. The birth was normal, but there was great hemorrhage with icterus on the third day, with an infiltration of the left arm. This was incised. It discharged no pus but an edematous fluid. On the fifth day a chill; on the ninth day parotitis. Death on the tenth day.

Autopsy: puerperal sepsis, suppurative and fibrinous meningitis, phlegmonous oöphoritis, anemia, icterus gravidus. Observation. It does not seem likely that hysterectomy would have helped this case.

Hochsetter[5] had during the year 1,719 confinements and 21 deaths.

Puerperal fever, five; rupture of uterus, one; eclampsia, twelve; chronic nephritis, one; collapse, one; heart failure, one; total, twenty-one.

Septic infection with recovery 10; phlegmasia, 1; metritis, 17; perimetritis, 5; light puerperal fever, 104; fever from known cause, 46; total, 183. 10.6 per cent. of all. Of these cases, 98 had syphilis.

1. Multipara, age 33, eighth birth. Two last births child was turned, owing to transverse position. On admission, temperature 37.8, pulse 120, pelvis flat, abdomen lax and pendulous, head retracted toward right, heart beat below navel, os admits two fingers. Patient stated that waters had passed on previous day, consequently examined by midwife. No pains; patient placed on right side, abdomen supported, producing appearance of head in os. Following day no pain, normal temperature. Second day, morning temperature 37.8, evening temperature 38.9, pulse 104 to 110. No labor pains. Pain in right inguinal region. Third day, temperature 39.4 and stinking lochia; no tympany of uterus, chills, and temperature 41. Pains; extraction of child nearly dead; irrigation of uterus; fall of temperature; manual removal of placenta on account of profuse hemorrhage and weakness of patient; irrigation of uterus. No hemorrhage; iodoform tampons in uterus and vagina. Tampons removed on following day, temperature 38 to 38.5. Fourth day, chills and high fever, remittent, then continual; twenty-nine chills. Thirty-sixth day after birth, death occurred.

Autopsy: diphtheritic endometritis; gangrenous, phlegmonous right parametritis. Right ovarian thrombo-phlebitis; thrombo-phlebitis of left renal vein and vena cava; multiple metastatic pneumonia. Hyperplasia of the spleen; ulcerative endocarditis. Observation. Abundant time for hysterectomy.

2. Primipara, 22; pelvic measure 25–27, 5–30–17, 5-10. First stage of labor on first day; second day chills, temperature 39.9, pulse 120, contracted uterus, heart beats 192 to 200, stinking lochia. Extraction of child with instrument; foul-smelling child; irrigation of uterus before and after spontaneous expulsion of placenta; fever intermittent, then continuous; constant irrigation; no relief; five chills, spleen, tumor and right sides parametric exudate. Twenty-first day after confinement, death.

Autopsy: peritonitis; adhesive and purulent double left parametritis with phlegmons; diphtheritic endometritis; gangrenous metritis; thrombo-phlebitis; parenchymatous nephritis. Observation. Abundant time for hysterectomy.

3. Multipara, 28, seventh birth. Admitted after delivery of dead child on previous day. Suffering from large condylomata. Placenta ejected by pressure on abdomen, then removal. Third day fever, irrigation of uterus, many coagulated blood masses removed from vagina, foul-smelling, injury of vagina to left of cervix, irrigation of uterus continued, curettage, removal of decidual remains. Temperature 37.6 to 38, pulse 110 to 120; ninth day chills, temperature 39.3; profuse hemorrhage from genitals; digital exploration of uterus, removal of large piece of decayed placenta; irrigation of uterus. Fourteenth day, death.

Autopsy: diphtheritic endometritis; parenchymatous nephritis; hepatitis; myocarditis; fibrinous right pleuritis; right hydronephrosis. Broncho-pneumonia of the right lung. Observation. Abundant time for hysterectomy.

4. Fourth day chills, temperature 40, high fever with moderate pulse. Ninth day, to right of uterus painful resisting mass, lochia stinking. Fifteenth day, incision of gluteal abscess, swelling of knee joint. Two incisions on fourteenth day with much pus, fever continuous; few days later two abscesses opened on nates; twenty-fifth day removed to other hospital; death four weeks after.

Autopsy: chronic suppurative perimetritis; psoas abscess; several para-articular abscesses about the right knee joint and right shoulder joint; parenchymatous nephritis and hepatitis. Observation. Hysterectomy should have been performed on the twelfth day.

5. Primipara, 24; fifth day after delivery, chills, fever 40.5, pulse 132, irrigation of uterus, no result, continued high fever. Sixth day, abdomen tender on pressure and distended; peritonitis. Death on eleventh day.

Autopsy: suppurative and fibrinous peritonitis; parenchymatous; myocarditis; hepatitis; nephritis and gastritis; erysipelatous endometritis and edema of the parametrium. Observation. Hysterectomy should have been done on the sixth day.

[5] Hochsetter: Charité Annalen, nineteenth year, 1892–93.

CONCLUSIONS.

1. Puerperal sepsis still causes almost one-half the deaths occurring in the puerperal state.

2. The causes of puerperal infection are the same as the causes of other wound diseases and should be treated on the same principles.

3. Curetting and irrigation are unavailing when the infection has passed outside of the endometrium and submucous connective tissues of the uterus.

4. The removal of the uterine appendages for infection outside the endometrium leaves behind the infected uterus from which the septic process goes on.

5. Removal of the uterus and its appendages should be performed when puerperal sepsis has gone beyond the endometrium.

6. The indications for hysterectomy in puerperal sepsis seem to be these: (*a*), curetting and uterine irrigation and tamponade have failed; (*b*), peritonitis or pelvic cellulitis is present; (*c*), hopeless localization of infection outside the pelvis can not be found.

7. Hysterectomy may not be helpful in the course of diphtheritic vaginitis and endometritis.

8. Hysterectomy may not be available in cases of rapid early infection.

9. Hysterectomy may not be helpful in cases of septic phlebitis reaching outside the pelvis.

10. The method of operating will depend: (*a*), upon the size of the uterus; (*b*), upon the condition of the uterine tissues; (*c*), upon the experience or choice of the operator.

11. Except in early operations in which the uterus is still large and therefore difficult to manage through the vagina, the vaginal method with the clamps will be preferred because it is a more rapid method, it is less objectionable in the public mind and it furnishes the best possible drainage.

12. When the uterus or its cervical portion are gangrenous, and when the operation is done during the first two weeks after confinement with a subinvoluted uterus, the combined operation will be found necessary. The clamps are put on the uterine arteries and the cervix detached through the vagina, and then the abdomen opened and the clamps put on the ovarian arteries and the uterus removed by the abdominal opening. The abdominal wound should then be closed.

SOCIETY PROCEEDINGS.

Southern Surgical and Gynecological Association.

Abstract of the Proceedings of the Eighth Annual Meeting, held in Washington, D. C., Nov. 12, 13 and 14, 1895.

FIRST DAY—MORNING SESSION.

The Association met in the banquet hall of the Hotel Shoreham at 10 A.M., and was called to order by the PRESIDENT, DR. L. MCLANE TIFFANY, of Baltimore, Md.

DR. S. C. BUSEY, of Washington, delivered an

ADDRESS OF WELCOME,

on behalf of the medical profession of the District of Columbia. In his closing remarks, Dr. Busey said: "I solicit your aid and coöperation in our effort to secure the protection of our people from the horde of impostors and charlatans, which you have driven from your borders by the enactment and enforcement of medical practice laws, and which has made the District of Columbia a common rendezvous where the most atrocious methods of the charlatan and mercenary impositions are openly and flagrantly committed to the wrong, injury and robbery of its citizens. You represent the most influential and intelligent class of suffragists for whose aid on the hustings and at the polls we plead.

"To state the deplorable condition of this District fully and broadly, there are five medical schools and several medical societies chartered by acts of Congress, or under the general incorporation law authorized and empowered to license persons to practice the art and science of medicine, without any uniform, and by some, without any, standard of qualification beyond the ability and willingness of the applicant to pay the required fees, or give promissory notes for such payment; and under the provisions of the general incorporation law any dozen of persons can obtain a charter upon payment of the fee for recording the same, authorizing them as a body corporate to confer the degree of M.D. at their pleasure and will. Such is the status of this Federal territory, which is under the exclusive jurisdiction of the highest tribunal of legislation in the land, made up of the Representatives and Senators from forty-nine States and Territories, which have enacted medical practice laws for the protection and welfare of their citizens. Take these facts home with you and reëcho them throughout the length and breadth of the land, that such criminal neglect, not less disgraceful and scandalous than the slums of vice, may not continue to afflict the citizens of the Federal territory."

PRESIDENT TIFFANY responded to the Address of Welcome for the Association.

After some announcements had been made by DR. JOSEPH TABER JOHNSON, of Washington, Chairman of the Committee of Arrangements, the reading of papers was taken up.

DR. BEDFORD BROWN, of Alexandria, Va., read a paper entitled

PERSONAL EXPERIENCE IN THE TREATMENT OF STAB WOUNDS OF THE INTESTINES AND PERITONEUM.

At the outset, the author stated that about one hundred and thirty cases of stab wounds of the peritoneum and intestines had come under his care during his entire professional experience in both private and military practice. In less than one-third of the cases the intestines were wounded. It is a little remarkable, said the author, that there should be such a disproportion in the number of intestinal wounds in these cases; in other words, it is a singular fact that in a large majority of abdominal wounds the intestines escape injury, even when such wounds are extensive. Transverse and longitudinal stab wounds of the intestines were then considered at length. Dr. Brown regards the saber wound as one of the most dangerous in its immediate and remote results. If the edge and point of the saber are sharp, the wound inflicted is large and deep. The weapon cutting through the intestines and mesentery, usually passing through the abdomen, severs large blood vessels and causes frightful hemorrhage, which is speedily fatal. He had seen three saber wounds of the abdomen, and they ended fatally in a brief time. The stiletto is a dangerous instrument, as it almost invariably enters an intestine or other organ. It does not kill by hemorrhage usually, but makes an opening in the intestine sufficiently large to permit the escape of a small quantity of fecal matter, causing septic inflammation. It is one of the most difficult of all intestinal wounds to detect.

The diagnosis of intestinal wounds was then dwelt upon, reference being made to Senn's hydrogen gas test to detect wounds of the intestine. While he considered it a useful test, in remote sections of the country far from large cities and towns, it is not practicable because of the impossibility of procuring the apparatus and generating the gas. In all abdominal stab wounds, the author's rule has been, after cleansing the hands and thoroughly disinfecting them, to insert the index finger and explore the intestine to ascertain if there is an opening. In certain cases a wound may exist in the intestine, but it may be so small as to escape detection. But if the intestine is wounded, whether we can insert the finger or not, there is always more or less extravasation of fecal matter and gases, and if the finger comes in contact with this matter it is certain to retain for a length of time the peculiar odor of human feces. This will always afford positive evidence of an intestinal wound.

In treating simple wounds of the peritoneum, the author's rule has been to close them with silver wire sutures after thorough disinfection. Formerly he closed these wounds without regard to antiseptic measures, except that the wound was washed with hot water and soap. On the battlefield and in field hospitals, wounds were washed with any water that was convenient, and were not washed at all when water could not be obtained. Previous to the introduction of antiseptic treatment in dressing wounds, but little attention was paid to the condition of instruments, sutures, sponges or dressings except the practice of ordinary cleanliness, and the percentage of cases of healing by first intention of simple wounds of the peritoneum was large. In dressing simple wounds of the peritoneum, scrupulous attention should be paid to the laws of cleanliness. In treating wounds of the intestines, two vital procedures are necessary. One is a complete and thorough closure of the intestinal wound; the other is to cleanse the peritoneal cavity of all fecal matter, blood and gases escaping from the intestine. Dr. Brown then described a simple method of reducing a protruded intestine in stab wounds. He takes two long slender curved needles, threaded each with a silken cord ten or twelve inches long. One of these needles is passed midway through the margin of the wound; the other needle is passed through the opposite margin and then each cord is tied in a separate loop. These cords are drawn in opposite directions by two assistants, upward and outward, firmly and tightly. By this means the wound is made to expand or gape widely, and at the same time the walls of the abdomen for a large area around the wound are very considerably elevated above the intestines, while the patient reclines in the dorsal position, and a considerable vacuum is in this way created and the intestines will glide back without force or manipulation to fill this newly created vacuum.

DR. RICHARD DOUGLAS, of Nashville, said that in peritoneal wounds we always have a mixed infection, which is more serious than an infection from the colon bacillus. Peritonitis, whether local, adhesive, general or septic, should be considered of germicidal origin. In closing the abdominal wound, he thinks it is proper to always approximate the peritoneum, as by so doing we lessen the danger of hernia.

DR. C. A. L. REED, of Cincinnati, expressed himself as being apprehensive about mere exploration with the finger to detect stab wounds of the intestines. However erudite the tactile sense of the surgeon may be, at times it would prove misleading, and therefore in certain cases it was exceedingly important to enlarge the original incision or wound, and that part of the viscera lying immediately beneath it should be brought out and carefully inspected. He believes with Dr. Douglas that the peritoneal margins should be carefully approximated.

DR. JAMES EVANS, of Florence, S. C., related an instance where nine men had received chest wounds by the bayonet during the war, the bayonets having been previously stuck in the ground, and yet all of the men recovered. He attributes their recovery to the form of wound made by the bayo-

net. In another case, a man had been shot within half an inch of the navel. He had no rise of temperature, yet when he saw the patient the omentum had extruded to the size of his both hands. He applied a double ligature, then put a piece of adhesive plaster over the surface, and the man recovered. He had frequently seen gunshot wounds of the abdomen during the war in which there was extravasation of fecal matter through the wound but unaccompanied by shock.

Dr. A. Vander Veer, of Albany, had always made it a practice to first inquire carefully as to the kind of weapon by which the wound is made. He had seen several of the wounds inflicted by bayonets during the war, but does not remember of having seen the intestines or stomach penetrated by them. There should be no delay in treating stab wounds. The surgeon should act promptly and not wait for symptoms to present themselves. Just as a case of perforative appendicitis will terminate fatally in a short time, so will stab wounds of the intestinal tract, unless timely interference is resorted to.

Dr. Hugh T. Nelson, of Charlottesville, Va., said the necessity of enlarging the abdominal wound, under all circumstances, was an imperative one. Four years ago he saw a case in which the small bowel was wounded by a knife and the patient refused operation for twenty-four hours, believing that this viscus was not cut. Symptoms became alarming and the patient finally consented to have an operation performed. Dr. Nelson opened the abdomen by a long incision, finding it impossible to remove from the peritoneal cavity the extruded contents of the bowel, owing to the fact that an adhesive inflammation had taken place and had agglutinated them to the bowel so firmly that he could not wash them away. He attempted to resect the peritoneum into the pelvic cavity where the fecal matter had burrowed, but could not do so. Peritonitis became general and the patient died. The sooner the abdominal incision is enlarged in stab wounds the better.

Dr. George Ross, of Richmond, asked whether there was any way of distinguishing between the symptoms of nervous shock and shock due to hemorrhage.

Dr. Brown replied, that one of the most unerring symptoms was rapid reduction of temperature, but there was no symptom that would enable the practitioner to distinguish accurately between the different forms of shock except the gravity of the condition.

Dr. W. E. B. Davis, of Birmingham, desired to speak of the point in reference to injuries of the gall bladder. The essayist referred to the fact that injury to this viscus would produce a septic peritonitis. An injury that would produce peritonitis would result in death very soon if there is a large escape of bile into the peritoneal cavity, but Dr. Davis does not believe it is a septic peritonitis. He believes that in the majority of cases the shock following abdominal injuries is due to hemorrhage, and that hemorrhage plays an important rôle in the production of symptoms in these injuries. It was the hemorrhage from these wounds that frequently caused death.

Dr. John D. S. Davis, of Birmingham, expressed himself in regard to the diagnosis of intestinal wounds, as having very little confidence either in Senn's hydrogen gas test, or the flushing method spoken of by the essayist. He had seen perforative wounds of the abdominal viscera where it was impossible, from their character and location, to flush the abdominal cavity through the opening sufficiently to thoroughly clean it. In addition to the three forms of shock mentioned by the essayist, there should be added the shock of sepsis.

Dr. Brown, in closing, agreed with Dr. W. E. B. Davis that all cases of violent or dangerous shock were due to hemorrhage. In regard to approximating the peritoneum, he had always left it untouched in closing simple wounds in the abdominal wall, and had found it good practice.

REPORT OF SEVEN CASES OF ABDOMINAL SURGERY IN WHICH THE MURPHY BUTTON WAS APPLIED.

This paper was read by Dr. A. Vander Veer, of Albany N. Y. The author stated that the seven cases he desired to present had a bearing upon the use of the Murphy button which is now receiving attention both in this country and abroad, and as a method of intestinal anastomosis is being placed thoroughly on its merits. It is difficult to understand some of the unfavorable reports made by English and German surgeons, when we contrast the very successful results indicated by so many of our American operators, in the practical application of this mechanical device. Perhaps there is no part of surgery that within the past quarter of a century has presented so much in theory, and in which there has been so much disappointment, when practical use has been made of the suggestions, as in the field of abdominal work, with all its complications. In other words, how much we have changed from time to time our methods of treatment of many complications, and yet withal there have come certain reliable advances that have met all requirements for which they were indicated, leaving permanently in our possession the comforting thought that a grand progress in the sum total has been made; that we can treat all manner of pathologic conditions, traumatisms, malformations, etc., of the intestinal tract and abdominal cavity with less embarrassment than perhaps in any other part of the body, and yet there are very few portions of the human system upon which we operate where more rapid thought and best judgment are to be employed than in abdominal work.

The first case was one in which gastro-intestinal anastomosis was made for carcinoma of the pyloric end of the stomach by means of the medium-sized Murphy button, between the upper end of the jejunum and greater curvature of the stomach. Patient was comfortable after the operation but died from exhaustion on the third day.

Case 2 was carcinoma of the sigmoid flexure, removal and end-to-end anastomosis. Operation consisted in removing a mass in connection with the sigmoid flexure, three inches in length, and an anastomosis of the large intestine by means of the button. Cause of constriction was found to be carcinoma. Patient died from exhaustion on the eleventh day, but was much exhausted and emaciated previous to the operation.

Case 3. Removal of gall stones from the gall bladder, using the long drainage tube button. Recovery.

Case 4. Removal of eight inches of the small intestine with papillomatous ovarian cyst. End-to-end anastomosis by the button. Perfect recovery.

Case 5. Anastomosis of the gall bladder with small intestine. Recovery.

Case 6. Operation revealed a tumor the size of a cocoanut in the immediate vicinity of umbilicus, a portion the size of a silver dollar implicating the umbilicus and in a gangrenous condition. On making an incision there was found a strangulated hernia, and many old and firm adhesions. Peritoneum intensely congested; very dark in color. Loop of small intestines included in tumor and gangrenous for space of ten inches. Vessels in mesentery secured and this portion of the intestine excised. Murphy button used for end-to-end anastomosis. Button passed thirteen days after operation, followed by a large movement of the bowels. Uninterrupted recovery.

Case 7. A diagnosis of biliary calculi was made in this case. Dr. Vander Veer made the usual incision for exploration of the gall bladder, found it containing about two ounces of bile, and through the walls and down into the cystic duct could be felt a number of small calculi. There were some adhesions. He made use of the long drainage tube button to the fundus of the bladder, and closed the wound, after a careful examination for any possible cancerous mass, which was not found to be the case, then placed the patient in bed. He regarded the use of the button in this instance as a saving of time, leaving the patient in good condition for removal of the gall stones later. Several days after he had made the exploratory incision the attending physician removed five irregularly shaped calculi, which Dr. Vander Veer exhibited. At this time the patient began to show marked symptoms of cerebral anemia, with delirium, which continued, patient finally passing into a comatose state and died, temperature just before death reaching 105.5 degrees. Dr. Vander Veer said that alhough the cases he had reported were not many, yet they covered a field in which the Murphy button might be made use of so readily and easily, and the result so satisfactory, that he had considered them worthy of atttention as having a bearing upon statistics. He believes he had given a just criticism of the accumulation of facts, so that we could reach and determine definitely as to the value and usefulness of this contrivance. The Murphy button will not answer for every lesion about the intestinal tract, but surely has its sphere of usefulness, being clean, easily handled, and saves the patient from a much longer operation, when time alone is the great desideratum, which can not be secured by some of the other methods.

Dr. H. H. Grant, of Louisville, followed with a paper entitled:

INTESTINAL RESECTION AND ANASTOMOSIS.

The Doctor said there had always been a division of judgment upon the question of immediate suture in acute ob-

struction or injury, requiring resection of the intestine, which even the improvements in technique and means of aid in operative work have not adjusted. The members were all familiar with the Murphy button and doubtless many had employed it. What it is intended to do it does well; but too often it does what is not intended, and disaster and death result. There is abundant evidence that it becomes a foreign body; that it occasions spreading necrosis, which involves the peritoneal coat; that recontraction takes place after lateral anastomosis; that fatal results are frequently directly attributable to its use, besides other less important objections.

Lateral anastomosis is now beyond all question the most acceptable method of resection of the continuity of the bowel, if we exclude the button. It is best to accomplish by direct suture, and direct suture is of difficult execution except in very skilled hands. In order to facilitate this suture, Dr. Grant presented a device for clamping opposing surfaces of the bowel, cutting off fenestra between them, and retaining them so opposed until the suture can be completed. He then demonstrated the *modus operandi* of his device. He had experimentally used the clamp sixteen times with fourteen consecutive recoveries, but he had had but one opportunity to use it in practice. On May 25 he operated on Mrs. E., aged 53 years, who had a fecal fistula at the right femoral opening, the result of a strangulated hernia, operated on eight months ago. An incision was made just above Poupart's ligament near the fistulous opening. The fingers easily liberated the intestine, which presented an opening occupying half of its lateral surface and as large as a quarter of a dollar. The mesentery was greatly thickened; the distal segment of the bowel was reduced in size, the proximal dilated at the site of the fistula. About four inches of the intestine was resected; the blades of the clamp were applied opposite the mesenteric borders of each segment, and the anastomosis made as above described. After suturing, the communication between the opposing surfaces was found ample. The cut ends were then invaginated and the anastomosis returned; the abdominal wall closed with silkworm gut sutures; the site of the fistula curetted and filled with iodoform gauze and the patient put back to bed in forty-two minutes. There was very little shock. At the present time the patient is well. The advantages of this method over the other aids, except the button, are manifest. Not only does it do away with the foreign body, but cuts an opening three or four inches long at the fenestra. It is fully as easily accomplished, and takes less time. It is no more difficult to use than is the button, bnt the operation can not be so quickly completed, as the invagination of the ends is not necessary after the end-to-end approximation by the button. The clamp makes direct suture easy to an ordinarily skilled hand.

DR. C. A. L. REED said experience would establish the fact that the Murphy button ought not to be used in approximation of the large intestine, for the reason that the intestinal contents were not sufficiently liquid to pass through the small opening in the button. In the small intestine it is different. There we have liquid contents that will pass through the opening in the button and the approximation is satisfactorily accomplished. Dr. Reed reported a case of resection of the sigmoid for malignant disease (which terminated fatally) in substantiation of the above remarks, the anastomosis being made by means of the Murphy button. He commended the device presented by Dr. Grant, and although he preferred the end-to-end procedure, he would try the device in the next case in which he performed lateral anastomosis. Cholecystenterostomy by means of the Murphy button was one of the easiest, neatest and altogether most satisfactory operations known to surgery.

DR. JOSEPH M. MATHEWS, of Louisville, said he had taken occasion more than once to call attention to the difficulty that attends diagnosticating tumor of any kind in the sigmoid flexure. Time and again he had been mistaken, as he believed others had, in supposing he had a malignant tumor of the sigmoid when he had not, and supposing, on the other hand, that he did not have when he really did. A few years ago a patient was brought to him from an adjoining State, and from evidence outside of palpation he believed that the man had malignant trouble of the sigmoid flexure. A few days thereafter he was taken to Chicago, was examined by a very eminent surgeon, who positively stated that there was no tumor of any kind in the flexure, and advised the patient to go home and go to work. In less than a week the man was dead. Autopsy revealed carcinoma of the sigmoid flexure. His reasons for opposing resection of the sigmoid and making anastomosis by the Murphy button were in substance the same as Dr. Reed's. Cancer in the sigmoid flexure was not only usually attended by systemic infection, but there is an involvement of other organs and tissues of the body. He would therefore ask, could a man live any longer after a surgeon had removed the tumor than he would if it was left untouched? Grant that there is total obstruction, would it not be better to perform colotomy and let the man live out his allotted days with cancer in a more pleasant way than he would if an operation were done? In lieu of this, it had occurred to him that the plan suggested by Dr. Bacon, of Chicago, of anastomosing the colon to the rectum, leaving the growth there, would be a more favorable operation than extirpation of the carcinoma.

DR. A. M. CARTLEDGE, of Louisville, said in doing a cholecystostomy there was not much time saved by using the Murphy button, and it was not as useful as the ordinary method of suturing. He thought this was well illustrated in one of the cases reported by Dr. Vander Veer in which there was a passage of stones after the operation, and where it was necessary on account of the extremely feeble condition of his patient. In cases with numerous small calculi extending into the cystic and common ducts, he had made a comparatively large incision in the gall bladder and sutured it to the peritoneum, where the stones could not be removed, and they would then pass for days externally through the drainage tube. The orifice in the button is too small to permit the stones to pass, whereas they would escape through a drain and come out. He expressed himself in favor of Dr Grant's device, and considered it an excellent one for lateral anastomosis.

DR. W. E. B. DAVIS believes the Murphy button can be used to advantage in intestinal work where it is necessary to do operations quickly; otherwise the method of stitching similar to that practiced by Abbe is better, is more certain, and accidents are not so likely to follow it as by the use of a mechanical appliance which is non-absorbable. Cholecystenterostomy by the button should be resorted to only in those cases where it is impossible to remove the obstruction in the common duct. The old method, as pointed out by Dr. Cartledge, is decidedly better in the other class of operations.

DR. VANDER VEER, in closing, was satisfied that end-to-end anastomosis with the button in the large intestine was not likely to be a satisfactory procedure, inasmuch as the caliber of the button was such as not to permit of the passage of hardened feces through it, while in the small intestine the feces would easily pass through the orifice in the button. He believed Dr. Grant had presented an appliance that would be of value to the profession. The fact that new devices were being presented from time to time before medical gatherings for intestinal anastomosis was ample evidence that we had not yet reached an ideal method. The Murphy button is an excellent device in the performance of cholecystenterostomy and other operations.

DR. GRANT believes that any surgeon of ordinary skill with his device, after having the two surfaces of the bowel directly opposed, can suture them without soiling the peritoneum or letting them slip away.

DR. J. MCFADDEN GASTON, of Atlanta, Ga., read a paper on

SURGICAL INTERFERENCE IN RECTAL DISORDERS.

After outlining the anatomy of the rectum, the author said it is a mooted point in regard to the practicability of eradicating rectal troubles of syphilitic origin by medication, and with the present light on the subject it seems justifiable to resort to such a surgical measure as the condition indicates, while constitutional treatment is being carried out in the case. There are instances of supposed development of specific disease in the form of stricture of the rectum, after the lapse of many years subsequent to any syphilitic contamination, and some authors claim their ability to diagnosticate specific stricture even without a previous history of primary syphilis. Strictures of the rectum from fibrinous depositions in its walls, call for division or excision of the structures involved. When carcinomatous induration of the rectal tissues is detected early, there is encouragement to undertake an operation, but after the breaking down of the neoplasm with infiltration of surrounding structures, no benefit is derived from excision of the parts involved. The rectum affords material for surgical work of the most important character, and it should not be relegated to those professing to deal with so-called orificial surgery. Dr. Gaston is fully impressed with the conviction that many cases find their way into the hands of quacks which ought to be treated by members of the regular medical profession, and preferably by those who have made a special study of rectal diseases and are prepared to treat properly all the surgical

disorders of the rectum. Reference was then made to a paper by Dr. Gerster, read before the American Surgical Association, upon the surgery of the rectum, in 1893.

The burning and urgent appeal to the surgeon to-day is for a definite settlement of the issue as to active interference in cases of pronounced cancer of the rectum. Shall we content ourselves with the mere palliative measure of inguinal colotomy and leave the diseased structures untouched, as urged by Dr. Mathews in his paper before the AMERICAN MEDICAL ASSOCIATION, or shall we endeavor to remove all the tissues involved by extirpation, as recommended by Dr. Gerster. The full statistics of results in the hands of skilled operators ought to be collected and a fair analysis made before a final adjudication of the question can be reached. The materials for such a comparison should be obtained from cancer hospitals in this and other countries, as well as from general hospitals receiving and treating this class of patients, and being grouped together a fair inference may be drawn as to the feasibility of active interference in any case of carcinoma of the rectum.

DR. J. M. MATHEWS said the essayist incidentally alluded to fissure of the rectum giving rise to reflexes. He was glad he mentioned this, simply to emphasize the point, that to have reflexes from the rectum we must have a pathologic condition. The so-called orificial surgeons had run wild with reflexes from the normal rectum, and as a consequence many respectable citizens in his own city had lost healthy rectums. In regard to stricture of the rectum, his observation has been that benign rectal stricture is very seldom met with. There were cases, however, mentioned by authorities, but Dr. Mathews had failed to find them. If he does find it, it is simply an annular constriction of the mucous membrane which is easily dissipated. It does not require excision. When the surgeon introduces his finger into the rectum and finds stricture there, it betokens one of three serious diseases —syphilis, tuberculosis, or cancer, and the patient should not be turned aside with a jesting remark that he has a rectal stricture. It is a serious thing. He maintains that 60 per cent. of the cases of stricture of the rectum arise from syphilis, or are the result of it. He had asked his professional friends to investigate this matter and make known their investigations. The responses he had received were nearly all in the affirmative. He regards stricture of the rectum as more frequent than either cancer or tubercle. With reference to excision of the rectum for a cancer that has blocked the rectum to the sigmoid flexure, in nearly every instance we have systemic infection. This being the case, can the man be cured by surgical interference? He wished, like Dr. Gaston, we could successfully remove the rectum for cancer, but he doubts it.

DR. H. M. NASH, of Norfolk, Va., had seen a number of cases of ulcer of the rectum cured by dilatation of the sphincters and topical applications. He uses the Sims' speculum, placing the patient in the exaggerated Sims' position, which gives the operator all the room he wants for manipulation in the rectum.

Dr. GASTON, in closing, congratulated Dr. Mathews on his attitude of masterly inactivity in a great many cases of carcinoma of the rectum.

Adjourned.

(To be continued.)

NECROLOGY.

FRANKLIN TOWNSEND Jr., M.D., died at Albany, N. Y., October 31. He had been an invalid for many months, suffering from a complication of diseases, terminating in consumption. His specialty was diseases of women and children, and he was the author of many valuable papers pertaining to the subjects. He is survived by his widow and two young sons. He was graduated in 1876, from the College of Physicians and Surgeons, New York.

EDWARD J. HARVEY, M.D., died suddenly October 27, at his home in Red Bank, N. J., of heart disease. He was 54 years old. He was born in Brooklyn, where he practiced for many years. He inherited a handsome fortune, and decided to give up his practice and moved to Red Bank about fourteen years ago. A widow and five children survive him. Dr. Harvey, soon after removing to New Jersey, rendered his name memorable by rescuing one or more persons from drowning, in the course of which rescue he performed the difficult task of resuscitating the inanimate rescued person while in the circumscribed space of a small row-boat. He was an alumnus of the Long Island College Hospital in the year 1874, and during his residence in Brooklyn was a member of Kings County Medical Society.

THOMAS F. YOUNG, M.D., of Brooklyn, died October 26, aged 28 years. He was the son of the late Dr. John S. Young, of the same city who died a few weeks since. He was a native of Brooklyn, and a graduate from the Long Island College Hospital, about four years ago. He was like his father before him, an employe of the Department of Health. His illness by pneumonia was of brief duration.

H. W. RAND, M.D., of Brooklyn. A minute in memory of the late Professor Henry W. Rand has been placed on the records of the Faculty of the Long Island College Hospital. It commemorates the loss of the college in his departure, and its appreciation of the estimable qualities of the deceased, saying:

"Our admiration for the man was the highest and most enduring, and was inspired by his many noble qualities of head and heart. In all his relations to us, the teaching faculty of this institution, he was always honest, honorable, earnest and competent. He was securely established upon the highest plane of professional success, and while we were rejoicing in the hope that he would continue his good work for many years, he was suddenly called hence."

RICHARD B. FRUIT, M.D., died at his home at Hazleton, Pa., November 10. Dr. Fruit was born at Jerseytown, Columbia Co., on August 12, 1827. In 1854, he was graduated by Jefferson Medical College and located in Hazleton immediately after, remaining there ever since. In 1855 he was married to Miss Jennie E. Longshore, daughter of Dr. Longshore. His wife died seven years ago. Three children survive the union. Dr. Fruit continued to practice medicine until four weeks ago, when he was stricken with apoplexy. From this stroke he never recovered. When Hazleton was incorporated as a city four years ago, Dr. Fruit was selected as President of the Board of Health. This position he held until the time of his death and was his only public office.

JOSEPH WILLIAM BROCKBANK, M.D., died of pneumonia at his home in Philadelphia, November 7. He was born in Elk County, Pa., July 18, 1862. He began life as a teacher in the public schools, but becoming interested in medicine, took up its study and was graduated at the University of Maryland in 1883. He settled in Philadelphia, in a suburb known as Nicetown, when he practiced until a week before his death. He was one of the originators of the North Philadelphia Hospital, of which he was appointed chief of the surgical staff. This was the predecessor of the Samaritan Hospital which continues in active operation under the management of Grace Baptist Temple. Dr. Brockbank leaves a widow.

GEORGE FOLLANSBEE JACKSON, M.D., of New York city, died November 10, from apoplexy. He was born in Pittston, Maine, on Oct. 7, 1827. He was a graduate of Bowdoin College; taught school; studied medicine in Gardner, Maine, under Dr. G. S. Palmer as a preceptor, and finally graduated in 1853 from the Jefferson Medical College. He gave much attention to school matters in his ward, having been an inspector for ten years before his death.

DWIGHT MORGAN LEE, M.D., of Oxford, N. Y., who died October 5, of angina pectoris, was one of the prominent practitioners of Chenango County. He was a native of Georgetown, N. Y., having been born there nearly fifty-three years ago; the son of Hiram and Miranda Bacon Lee. He was a graduate from the Albany Medical College in 1864, and directly thereafter settled for the practice of his profession at Oxford. Interment took place at Riverview Cemetery.

CHARLES BARTOW, M.D., formerly of the staff of the Presbyterian Hospital, New York city, died at Astoria, L. I., on October 26. He was graduated at Columbia College in the class of 1891, and took his degree of Doctor of Medicine at the College of Physicians and Surgeons in the class of 1894, graduating with high honors, and winning the second Harsen prize of his year.

Ross O. SIDNEY, M.D., of Brooklyn, died October 31, in his seventy-fourth year from a brief illness by pneumonia. He was for twenty-five years a resident of Brooklyn, and at one time prominent in political affairs. He was an alumnus of the class of 1846, of the University of Pennsylvania.

JOHN LLOYD ZABRISKIE, M.D., of Brooklyn, N. Y., died suddenly while away from his home on the 11th inst., in his sixty-fifth year. He was the eldest son of Dr. John Barrea Zabriskie, who married Miss Abby Lefferts Lott of Flatbush, a member of one of the oldest families on Long Island; she died in 1848. John Lloyd Zabriskie was born on August 26, 1831, in the old house of the Zabriskie homestead, which stood until a few years ago at the corner of Flatbush Avenue and Church Lane, just in front of the present family residence. It had stood there for two hundred and twenty-five years, and was the oldest house in Flatbush. His early education was acquired at Erasmus Hall Academy. He then entered Columbia College and took a literary course. After graduating from Columbia he studied medicine with Dr. J. M. Ingraham of Flatbush, who had been his father's most intimate friend, and at the same time attended lectures in the New York Medical College, and was graduated in 1853. In 1861 he married Miss Eliza B. Garvin, and their union has been a most happy one. The friends of the dead man say that there was not in all Brooklyn a home more refined, more hospitable or more exemplary as to the purity and peacefulness of the family life than the Zabriskie home. Although a busy physician, Dr. Zabriskie found time to indulge his fondness for music. He had a cultivated voice, and was an accomplished performer on the violin. His sunny disposition, his kindness, sociability and his sincerity made him good friends everywhere. He was a member of the Kings County Medical Society, consulting physician at the Kings County Hospital, a member of the Board of Education, an elder of the Dutch Reformed Church and a member of the Knickerbocker Field Club. He had for many years been identified with the Medical Board of the Long Island College Hospital. He has left a widow and three children, of whom two are sons who have elected to follow their parent in the medical profession. One of the sons is at present studying pathology at the University of Berlin. The cause of Dr. Zabriskie's sudden demise is set down as heart disease, culminating in angina pectoris. The profession has lost in Dr. Zabriskie one of its stanchest and sincerest supporters.

PUBLIC HEALTH.

The Pasteur Institute of New York and Its New Serum Plant.—It is reported that an out-of-town extension of this Institute will be made. The conductors have made a purchase of thirty-five acres near Tuxedo, on which will be established an experiment station. It will be stocked with cows, horses, sheep, mules and goats, which will be bred with the express idea of producing antitoxin for the prevention of cancer and diphtheria. This substance sells for a high price and its manufacture will be very profitable. The station is well located, and one of its features will be a house in which the patients of the Institute will be treated. A new station is to be established on the Erie Railroad near by, which will be known as Pasteur.

A Miniature Hospital in the Home.—In the *Practitioner* for September, Dr. Malcolm A. Morris, of London, favors the proposition that in planning a house, regard shall be had for the future needs of the occupants in the time of sickness. His recommendation is that one room should be set apart in design as the sick room. This room should be shut off as much as may be from the common atmosphere and common noises of the dwelling—or, rather, it should be so arranged that it can be shut off at any time—and there should be a bath room and water closet close at hand. The walls and floors and other surfaces should be impervious, so as to harbor no impurities and to admit of ready cleansing, and the furniture and fittings should be simple, with the same object. If in addition there should be a second room available for the nurse's use, the essentials for the proper seclusion of infectious cases are provided, as far as possible in a private house. A miniature hospital is then ready at hand, and at ordinary times it can serve as a spare room or even as a bedroom in regular use, differing only from any other room in its adaptability to the special purpose in question. This plan should be especially welcome to the paterfamilias in whom the home feeling is active, and whose olive branches sprout out thick and fast. To such an one the little private ward may be a positive and blessed economy in saving the doctor's bills that are apt to pile up where the children's diseases—as they are improperly called—take a run through the family. This incentive is apart from the higher economy that may also take place, namely the saving of the lives of some of the juniors of the family.

Health Reports.—The following health reports have been received by the Supervising Surgeon-General, Marine-Hospital Service:

SMALLPOX—UNITED STATES.

Michigan: Detroit and Rochester, smallpox reported November 9.

SMALLPOX—FOREIGN.

Glasgow, October 19 to November 2, 9 cases.
London: October 19 to November 2, 5 deaths.
Naples: October 19 to November 2, 6 cases, 6 deaths.
Odessa: October 19 to November 2, 6 cases, 1 death.
Warsaw: October 12 to 19, one death.
Montevideo: October 5 to 12, 5 cases, 3 deaths.
Buenos Ayres: August 1 to 31, 41 deaths.
Dublin: October 26 to November 2, 3 cases, 1 death.
Buda-Pesth: October 21 to 28, 2 cases.
Calcutta: September 21 to 28, one death.
St. Petersburg; October 19 to 26, 3 cases, 3 deaths.

CHOLERA.

Bombay: October 8 to 15, 2 deaths.
Calcutta: September 21 to 28, 35 deaths.
Yokohama: September 20 to October 11, 10 cases, 9 deaths.
Austria-Hungary; October 15 to 21, 57 cases, 32 deaths.
Russia: Volhynia Govt., September 1 to 7, 4.237 cases, 1,668 deaths; September 8 to 15, 3 554 cases, 1,417 deaths; Podolia Govt., September 1 to 15, 51 cases, 19 deaths; Primorstajahezirk (Siberian Russia), July 30 to September 18, 82 cases, 58 deaths.
Egypt: Damietta, October 11 to 16, 15 cases, 8 deaths.

YELLOW FEVER.

Cuba: Santiago, October 26 to November 9, 29 deaths; Sagua la Grande, October 26 to November 2, 3 cases; Cienfuegos, November 3 to 10, 1 death.

BOOK NOTICE.

The Diseases of Children's Teeth, their Prevention and Treatment. A Manual for Medical Practitioners and Students. By R. DENISON PEDLEY, M.R.C.S., L.D.S., F.R.C.S. Illustrated. 8vo, cl. London: J. P. Segg & Co. Philadelphia: The S. S. White Dental Mfg. Co.

This work is intended to supply information on the nature and treatment of diseases of the teeth to students and general practitioners of medicine. More particularly, says the author, for those who "settle down in the country where the area of practice is wide and the opportunities of obtaining skilled dental assistance are few." Notwithstanding the fact that it was particularly intended for the especial class mentioned, yet it is evident on inspection, that the work may be read by many dental and oral surgeons with profit. While American dentistry has forged ahead in the international race for superiority with gigantic strides, still we suppose our practitioners may be interested in the elementary work of our British cousins—but the general practitioner of medicine who can not and does not wish to reach the high plane of the metropolitan dentist, will find that there is very much to interest and instruct him in this little volume; indeed we scarcely know what other work "fits that particular niche" with such nicety.

THE
Journal of the American Medical Association
PUBLISHED WEEKLY.

SUBSCRIPTION PRICE, INCLUDING POSTAGE:
PER ANNUM, IN ADVANCE $5.00
SINGLE COPIES . . . . . 10 CENTS.
Subscriptions may begin at any time and be sent to
THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION,
No. 86 FIFTH AVENUE, CHICAGO, ILLINOIS.
W. H. LOWDERMILK & CO., WASHINGTON AGENT.

MEMBERSHIP IN THE AMERICAN MEDICAL ASSOCIATION.

This is obtainable, at any time, by a member of any State or local Medical Society which is entitled to send delegates to the Association. All that is necessary is for the applicant to write to the Treasurer of the Association, Dr. Henry P. Newman, Venetian Building, Chicago, Ill., sending him a certificate or statement that the applicant is in good standing in his own Society, signed by the President and Secretary of said Society. Attendance as a delegate at an annual meeting of the Association is not necessary to obtain membership.

On receipt of the subscription the weekly JOURNAL of the Association will be forwarded regularly.

Gentlemen already members of the Association should send their annual subscription to the Treasurer, or direct to the JOURNAL office.

All communications and manuscript of whatever character, intended for publication in the JOURNAL, should be addressed to the *Editor*, and all communications relative to the business of the JOURNAL, proof sheets returned, or in regard to subscriptions, should be addressed to THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 86 Fifth Avenue, Chicago.

SATURDAY, NOVEMBER 23, 1895.

POST-TYPHOID BONE LESIONS.

Typhoid fever may have many sequelæ, and not the least interesting and important of these are the post-typhoid bone lesions which have attracted considerable attention, both before as well as after the discovery of the specific cause of typhoid fever. As would be naturally expected, the identification of the EBERT-GAFFKY bacillus as the specific cause of typhoid fever has been followed by a thorough investigation of the post-typhoid bone lesions and the results have established an undoubted relation between them and the primary typhoid attack.

EBERMAIER[1] obtained the bacillus of EBERTH in pure culture from two instances of suppurative periostitis following typhoid fever. ORLOFF[2] and ACHALME[3] found the same bacillus in pure growth under the same conditions. Others have made similar observations. PEAN and CORNIL[4] describe necrosis of the tibia, occurring eight months after recovery from typhoid fever, in which the bacteriologic examination showed the typhoid bacillus associated with other organisms, and FASHING[5] and E. FRAENKEL[6] both found the typhoid bacillus associated with pyogenic microbes under similar conditions. Then there are also examples of post-typhoid bone affections associated with the pyogenic cocci only. Such post-typhoid inflammatory and suppurative lesions in the bones may consequently be produced by the ordinary or less common pus microbes alone or associated with the bacillus of typhoid fever and careful investigations have also shown that they may be caused by the latter microörganism alone.

Naturally, the question of the pyogenic properties of the typhoid bacillus is of much interest in connection with the sequelæ. ORLAFF[7] and ADENOT[8] both caused suppuration in dogs and rabbits by the subcutaneous inoculation of pure cultures of the typhoid bacillus. More recently this problem has been subjected to an elaborate experimental investigation by DMOCHOWSKI and JANOWSKI,[9] and these workers reach the apparently incontestable conclusion that there is no animal tissue in which the bacillus typhosus may not cause suppuration under suitable conditions. Inasmuch as the pyogenic staphylococci and streptococci cause suppuration in various tissues only under what may be called suitable circumstances, it follows that the typhoid bacillus is similar to them in this respect, and it may be said that it is now settled beyond all doubt that the bacillus of typhoid fever when in possession of a certain degree of virulence, possesses distinct pyogenic properties.

A satisfactory explanation of the occurrence of bone lesions after typhoid fever has not as yet been advanced, but many valuable observations bearing on this point have been made. Thus QUINCKE[10] demonstrated the presence of the typhoid bacillus in the spleen and the bone marrow, especially the ribs, as late as the seventh week of the disease. In nine cases examined, eight showed the organism in the rib marrow. It has also been shown that this bacillus has a very marked tenacity of life outside of the body. Now these points certainly throw some light on the development of post-typhoid bone lesions at periods long after the attack of the febrile disease, but the causation of a distinct necrosis in one instance and not in another is the problem that baffles all efforts at explanation.

Very recently PARSONS[11] reviews this subject of post-typhoid bone lesions and describes six cases observed in the surgical clinic of the Johns Hopkins Hospital. Four of these six cases were in men and two in women. The period after recovery from typhoid fever at which the lesions appeared varied from one to sixteen months. The character of the typhoid attack did not bear any relation to the occurrence of the bone changes. It is interesting to note the general fact that the symptoms of the bone infection, almost without exception, come on some time after convalescence has been well established. In one case[12] only did the bone changes manifest themselves during the course of the fever. In PARSONS' cases the lesions were situated in the ribs or the costal cartilages in three instances, in the tibia once, once in both tibiæ, and once in the left radius and the right tibia.

From the cases described in the literature it appears that almost any bone in the body may be involved, but that the tibia is undoubtedly the bone of choice, the instances in this situation greatly predominating, whereas the hands and the feet are remarkably free.

From the bacteriologic notes accompanying the cases described by PARSONS, it is seen that the

typhoid bacillus was present in pure culture in four out of the five cases that were examined; the remaining case was one of mixed infection, a focus in the radius showing the typhoid bacillus associated with the staphylococcus pyogenes citreus, and a focus in the tibia the staphylococcus pyogenes aureus only.

Usually, the first symptom of a post-typhoid bone lesion is pain. Sometimes this will be complained of while the patient is still in bed convalescing from the typhoid fever, at other times the pain will appear soon after getting up and about. The pain is usually localized and almost invariably involves the region subsequently the seat of the necrosis. This pain has been likened to the bone pains of secondary lues. Usually, this pain subsides and may leave a little soreness over the formerly painful spot. Simultaneously with the pain, a slight swelling usually occurs which disappears with the subsidence of the spontaneous pain. Now, in some cases the trouble soon recurs with pain, swelling and indications of necrosis; in others this may be delayed for months; in other cases, again, there may be repeated exacerbations and remissions that never seem to be followed with necrosis. As a rule, there is an entire absence of fever, and the clinical course is marked by a peculiar chronicity.

In one of the cases described by PARSONS, the swelling that formed underwent resolution; it had appeared during convalescence just above the left costal margin; eight months post-typhoid it again appeared and subsided to make its third appearance about one year after the onset, after which it disappeared again leaving a painless induration.

The chronicity of this post-typhoid process in the bones, which seems to be a characteristic feature especially of these cases that are found to be due to a pure infection with the typhoid bacillus, has caused it to be considered by some as analogous to the cold suppurations of tuberculosis and the necrosis of syphilis. Histologic examination of the diseased tissue has failed to reveal anything that could be considered characteristic of, or peculiar to, these lesions, although some authors speak of the changes due to the typhoid bacillus as partaking more of the nature of a pure necrosis than of typical suppuration as shown by the examination of the pus; the usual appearances under the microscope show a marked round cell accumulation with a greater or less leucocytic infiltration.

The diagnosis of such cases would rest largely upon the history of a previous typhoid fever, or perhaps of some indefinite continuous fever. The occurrences of inflammations in bones during or after convalescence is suggestive of a pure typhoid infection, whereas the mixed infections in bone and soft parts, and the typhoid infections in the soft parts are seen more frequently during the course of the disease.

As a rule, the prognosis is good, although a fatal case of disease of the femur showing association of typhoid and colon bacilli has been reported by KLEMM.[13]

Complete excision of all the diseased and suspected tissue appears to be the most satisfactory treatment. Mere excision is not sufficient, because it has been so often found that the microörganisms will persist in the wound for an almost indefinite length of time.

THE PHYSICIAN IN OREGON.

The legislative assembly of the State of Oregon, in its 1895 session, passed a new law for the regulation of the practice of medicine and surgery, which, in some of its features, is of more than local interest. Among other things, it provides that the Governor shall appoint five persons from among the most competent physicians of the State, all of whom shall have been residents of the State for seven years and of at least five years' practical experience in their profession, who shall be known as the Board of Examiners for the State of Oregon. Three of the board shall be regulars, one "eclectic" and one "homeopathist." The full term of office is five years. The board is required to hold meetings for examination on the first Tuesday of January and July of each year, at Portland, and it may call special meetings when in the opinion of a majority of the members it is deemed necessary.

Examinations shall be in anatomy, physiology, chemistry, materia medica, therapeutics, practice of medicine, surgery, obstetrics, diseases of women, medical jurisprudence and such other branches as the board shall deem advisable. They must be both scientific and practical, and of sufficient severity to test the candidates' fitness to practice medicine and surgery. They may be by written or printed, or partly written and partly printed, questions and answers.

The board may refuse or revoke a license for unprofessional or dishonorable conduct, subject, however, to the right of the applicant to appeal, from the decision of the board, to the circuit court. And before a license can be revoked, a complaint of some person under oath must be filed in the office of the secretary of the board, charging the acts complained of; the accused must be served with a written notice and copy of such complaint; a time and place for hearing thereon appointed, and stated in the notice, and the accused be given an opportunity to appear and

1 Deutsches Archiv. für Klin. Med., Bd. XLIV.
2 Centralb. für Chirurg., 1889.
3 La Semaine Medicale, J. X, 1890.
4 Bull. de l'Academ. de Med., 1891.
5 Wien. Kl. Wochenschr., 1892.
6 Baumgarten's Jahresbericht, VI.
7 Loc. cit.
8 Arch. de Méd. Experimental, J. 1.
9 Zeigler's Beiträge, XVII, Bd., Heft. II.
10 Quoted by Parsons, Annals of Surgery, vol. XXIII, No. 5.
11 Annals of Surgery, vol. XXII, No. 5.
12 Ebermaier, loc. cit.
13 Arch. für Kl. Chir., Bd. XLVII.

defend himself, personally and by counsel, have the sworn testimony of witnesses taken and present other evidence in his behalf.

The words "unprofessional" or "dishonorable conduct," are declared to mean: 1, the procuring or abetting in procuring a criminal abortion; 2, the employing of what are popularly known as "cappers" or "steerers;" 3, the obtaining of any fee on the assurance that a manifestly incurable disease can be permanently cured; 4, the willfully betraying of a professional secret; 5, all advertising of medical business in which untruthful and improbable statements are made; 6, all advertising of any medicines, or of any means whereby the monthly periods of women can be regulated, or the menses reëstablished if suppressed; 7, conviction of any offence involving moral turpitude; 8, habitual intemperance.

The person receiving a license shall file the same, or a copy thereof, with the county clerk of the county wherein he resides, and in case he shall move into another county, he shall procure from the county clerk a certified copy of such license and file the same with the county clerk in the county to which he removes.

The penalty for practicing medicine or surgery without a license, or contrary to the law, is a fine of not less than $50 or more than $100, or imprisonment in the county jail not less than ten nor more than ninety days, or both such fine and imprisonment. All fines are to be paid into the State treasury for the use and benefit of the common schools.

Any person shall be regarded as practicing medicine within the meaning of this act who shall append the letters "M.D." or "M.B." to his or her name, or, for a fee, prescribe, direct or recommend for the use of any person, any drug or medicine or agency for the treatment, care, or relief of any wound, fracture or bodily injury, infirmity or disease; provided, however, the act shall not apply to dentists in the practice of their dental profession.

THE CRIMINAL BRAIN NOT NECESSARILY DEGENERATE.

At the Philadelphia Academy of Natural Sciences the subject of degeneration was discussed recently by the Section on Anthropology. Dr. Charles K. Mills presented the brains of three murderers and demonstrated in them the abnormalities in the course and development of convolutions and fissures, apparently showing a reversal to the brain conformation of anthropoid apes. Two of the murderers were insane, which also was indicative in the mind structural peculiarities.

Dr. M. V. Ball dwelt upon the distinction between the "degenerate" and the "atavistic" brain, the former being pathologic; the latter the result of reversion to a lower type. Idiots, insane and epileptic subjects belong to the degenerate class, while, according to Lombroso, born criminals are the result of a halt in evolution, or what is termed reversion. Some criminologists maintain the view that the changes are due to faulty nutrition, and as criminals are usually of the pauper classes, the fault, in that case, would be primarily social.

Prof. D. G. Brinton declared that because a man's brain showed characters of a lower type, it need not be inferred that he was necessarily criminally inclined. The lower races are often as ethically elevated as many civilized races, and furthermore, men of honest habits may possess brains exhibiting the anomalies referred to. Crime is not so much the result of anatomic, as it is of social conditions; if it were solely physical, we could do little toward improvement, whereas we know that crime can be reduced by better social advantages and an improved environment.

Professor Cope expressed his belief that physical organization does control action, but an unfavorable environment acts by developing degenerate and physically inferior individuals. Society may do much toward improving the human race by preventing the physically degenerate from reproduction.

Prof. L. Witmer exhibited a cast of the brain of Laura Bridgman, who in the physical sense was a degenerate, though morally and intellectually of high culture and development. Some of the characters of the alleged criminal brain were present, and there was deficient development of the centers in the cortex where the faculties of sight, speech and hearing have been located, showing that degeneration here was to be traced to disease of the sense organs.

Prof. Ernest Laplace said that he had examined the brain of Gambetta shortly after his death, and though a very small brain, comparable in size to that of an idiot, it was strongly developed in the region of the speech centers, which corresponded with his great oratorical ability during life. Criminality, according to Professor Laplace, is an exaggeration of selfishness, and he suggested that a center for selfishness may some time be determined.

Prof. Harrison Allen spoke of the non-permanence of peculiarities of brain structure, and said that they constantly tend to return to an earlier type of formation. Man is a domesticated animal and like other domestic animals has a tendency to revert to a more primitive condition. He maintained that because ape-like characters are found in a brain, we have no right to assume that the person's actions during life were ape-like, any more than we have to assert that those which showed features which are found in the hog are necessarily hog-like. The brain may exhibit apparent abnormalities or peculiarities without proving anything against the moral character or mentality of the owner.

THE CORRESPONDENCE OF THE INSANE.

The latest report of the New York State Commission in Lunacy contains two letters from the Assistant Postmaster-General, giving the opinion of the Department in regard to rights of the insane, and others under legal detention, in the matter of their correspondence. The question often arises with asylum physicians as to how far they are justified in withholding or examining letters sent to inmates when, for good medical or other reasons, this seems imperative or advisable. According to the ruling of the Post-office Department, they have the right to withhold letters from patients when it seems necessary to do so, but the right of examination is not specifically stated, though it seems to be inferred by the New York Commissioners.

The safe statement of the case seems to be this: the legal and natural guardians of the lunatic, and lacking such the asylum authorities, have the full right to say whether or not he shall receive letters, but whether they can open and inspect them without his consent, may yet be a question for decision by the Department.

As regards the sending of insane patients' letters, there should be no legal question—it ought to be left entirely to the judgment of the physician in charge. Some years ago, it is said a recovered patient in England brought suit for damages against a doctor for mailing his insane correspondence, and it is not hard to see a possible reason in his complaint. There is, nevertheless, an almost perennial movement in our various State Legislatures for enlarging the freedom of the insane in this direction. For example, a few years ago, a bill was introduced into the Illinois Legislature to allow every inmate of a State hospital to select a correspondent with whom all communications either way should be inviolate. The bill had perhaps a fair prospect of becoming a law until its possible consequences were practically demonstrated by samples of insane correspondence to the committee that had it in charge.

The chances for serious consequences from too lax an oversight of the letters sent out by lunatics are real, and very serious mischief has been done in this way. A few years ago, the authorities of the Willard Asylum were embarrassed by the arrival of a whole family from Europe who had broken up their home, sold out their interests and came there on the representations of a megalomaniac inmate, only to find themselves the victims of the delusions of a lunatic. The still more probable possibilities of libelous statements and improper communications are also to be borne in mind, as well as the mortification any right-minded person would feel on recovery or in lucid intervals, in knowing that such evidences of his disorder had been allowed to go abroad. It was this last consideration that was the basis of the English suit already referred to, as stated in the account of the case given at the time.

The matter is one that is of interest, not merely to asylum officers, but to any medical man who may be consulted in regard to the management of the insane. It is well that, in view of the coming legislative sessions, medical influence and opinion should be firmly against any pseudo-philanthropic measures that are against the best interests of those they are ignorantly intended to serve.

THE MEETING OF THE TRUSTEES.

The semi-annual meeting of the Board of Trustees was held November 16. Only two members were absent and the meeting was a harmonious one. All regretted that the illness of DR. REEVES prevented his attendance. The Treasurer's statement showed a larger balance in the ASSOCIATION treasury than for several years past, and the editor's report, printed in another column, told the story of the year's prosperity. The Board took measures for increasing the number of subscribers, and the membership of the ASSOCIATION, and for the betterment of the equipment of the JOURNAL. The allowance of $400 for the expenses of the Committee on the Department of Public Health was made in accordance with the resolution of the ASSOCIATION at the Baltimore meeting, and will furnish that committee with a sum sufficient to carry on an active canvass during the winter.

The great improvement in the JOURNAL and its affairs will not induce the management to remain quiet, but, on the contrary, only operates to encourage renewed effort. The ASSOCIATION, in founding the JOURNAL, had no intention of making it a commercial enterprise, and the only legitimate object of the money in the treasury is to make the JOURNAL better and better, as fast as its funds will allow, so that the members may receive the benefit in the form of an improved publication.

Our readers will be glad to know that SECRETARY ATKINSON has completed a card index to the first twenty volumes of the JOURNAL, and the Trustees have ordered it printed in book form, which will be sold at a nominal price.

This index will follow the index to the thirty volumes of the ASSOCIATION, issued by SECRETARY ATKINSON when the annual volume of Transactions was suspended and the publication of the JOURNAL was begun by a Board of Trustees with N. S. DAVIS SR., as editor. From that day to this, there has scarcely been a break in the steady progress of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, and we can truthfully say that, notwithstanding the great financial depression of the past three years, few business enterprises have prospered more than our JOURNAL. Let the fact, as it stands, encourage the members to go on with the good work of organization, until our ASSOCIATION stands first in membership of any in the world, as it is now first in America!

CORRESPONDENCE.

A Case of Malignant Hemorrhagic Malaria with very Large Spleen.

ELGIN, ILL., Nov. 15, 1895.

To the Editor:—With the permission of Dr. J. F. Bell, I wish to report an interesting case of hemorrhagic malaria in which I was called in consultation:

W. M., male, age 25, recently from a malarial region of Kentucky and for years a victim of that disease. He has had several chills during his three weeks' residence here, of the remittent form. October 27, last, the patient left the house feeling very well, not having had a rigor during the last week. While waiting in the depot for a train to Chicago, he suddenly became quite sick. He struggled back to the house and on reaching it he fell to the floor, complaining of pain, and also had a chill. Dr. Bell was called, and found the patient in a delirious state, temperature 104, pulse 130, strong and full; palpation and pressure over the spleen and liver was resisted by the patient; percussion revealed increased dullness of both organs; the Doctor prescribed quinin in large doses frequently, sponge baths and opium as a sedative. I was called a few hours later and found that the patient had passed a very large quantity of sanguineous urine, had also vomited a fluid substance of a very blackish hue. The vomited matter was not saved, so could not tell what the nature of it was. His temperature had increased to 105, fluid extract ergot ʒss. doses every two hours ordered for the hematuria. Dr. Bell called again about four hours later, patient being no better, fever and hematuria still persisting. I saw him at 9:30 that evening with Dr. Bell. Temperature was 105.5, pulse 140, skin very hot and slightly icteric, sclera yellow. He was quite restless and still delirious. His brother exhibited a chamber vessel which was about half filled with sanguineous urine which patient had passed during the last five hours. Pot. bromid gr. xv, chloral hydrat. xv was ordered to be given every two hours until sleep was produced. The treatment of the morning kept up and ice cap applied. He passed a very restless night. Dr. Bell and I saw him several times during the next day. During the early morning hours he became very much jaundiced, the entire body being of an intensely lemon yellow color. Resorting to the various antipyretics, cold, enemas, ergot in smaller doses more frequently did not seem to check the temperature or hematuria. He became so restless that restraint was required to keep him in bed, and was much worse about 3 P.M., at which time his temperature per axilla was 107.25, with a quick running pulse. He died at 4:15, thirty-one hours after attack.

I made an autopsy on the remains about twenty hours after death, assisted by Drs. Albert Swartz and J. F. Bell, and found on external inspection a young man of great muscular development. No emaciation, skin of a bright lemon hue, also conjunctivæ; rigor mortis very pronounced. Examination of the organs followed. Pericardium contained a greater quantity of fluid than normal. A stringy, colloid, sticky and thickened material was found to extend into the aorta and after removing it was found to be about a foot in length and corresponded to the rounded shape of that vessel; insufficiency of aortic valve, otherwise heart was about normal in appearance, weight and size. Lungs were congested, more marked on lower lobes. Liver greatly enlarged, of a dark reddish brown appearance, capsule slightly thickened, on cut surface of a yellowish brown color filled with pigment, and cutting with more resistance than usual. Gall bladder full of fluid; no concretions; openings and ducts patent. The spleen was nine inches in length, six and one-half in breadth and three inches thick, weight 1,630 grams, of a grayish-brown color; capsule not thickened. The parenchyma, soft, of a dark brownish color and impregnated with pigment. Kidneys enlarged, swollen and congested; capsule slightly adherent; cortical markings indistinct. The medullary substance of a dark grayish-red color with scattered areas of pigmentation. Stomach contained a quantity of dark greenish fluid. Bladder also contained a quantity of sanguineous urine.

I will add that the cutting of the skin was accompanied by a raw leather-like resistance to the knife, also cutting the serous surface was like cutting cartilage.

H. J. GAHAGAN, M. D.,
Assistant Physician, Illinois Northern Hospital for Insane.

A Specific for Spasmodic Croup.

SAN DIEGO, CAL., Nov. 16, 1895.

To the Editor:—Among the remedies for acute laryngitis suggested in a recent and elaborate contribution to the JOURNAL, I am surprised that no mention is made of the oleoresin, improperly called "balsam" copaiva. I regard its employment as quite an advance on the antiquated ipecac, turpeth mineral, *et id omne genus* treatment, and for many years I have used it to the exclusion of all such. Preferably, it should be given in a full dose of 15 or 20 drops to a child 2 or 3 years old, at bedtime, or immediately following the first hoarse inspiration or cough. This will generally carry the little patient through the night, or certainly until the early morning hour, when a recurrence of the paroxysm is often expected. *En capsule* is the best method of administration, for the purpose of disguising the unpleasant taste. The syrup of copaiva, prepared by rubbing the oleoresin with calcined magnesia, and adding oil of peppermint and simple syrup, is an eligible formula. Less so, is an emulsion with mucilage, yolk of eggs, or alkalies. The required doses, however, are so few, and time often of such importance, that I commonly extemporize a combination of the remedy with sugar or molasses. The element of fear of suffocation usually renders the little patient quite tractable, so that he gracefully submits to almost any form of medication at such times. I can yet recall, *ad nauseam*, the not infrequent doses of "hive syrup" of my youth.

In the presence of a severe attack, I give the copaiva *imprimis*, and then transfer the child, if in a cold room, to the nursery or kitchen, where he is subjected to heat and steam. A shawl thrown over the heads of nurse and child, as well as over the teakettle, is a ready method. The first whiff of steam relaxes the spasm, if the remedy has not already done so, and the crisis is past. The child should be detained in a warm room for the two succeeding days and nights, taking similar or smaller doses each evening upon retiring, and, if thought best, a few drops at intervals during waking hours.

By this method, the system is not relaxed with a tendency to contract additional cold, and I am sure it will supply a long-felt want to paterfamilias if not to his progeny.

C. M. FENN, A.M., M.D.

ASSOCIATION NEWS.

Report of the Editor to the Board of Trustees.

Semi-annual Meeting held in Chicago Nov. 16, 1895.

[Published by order of the Board.]

TO THE PRESIDENT AND MEMBERS OF THE BOARD OF TRUSTEES.

Gentlemen:—I have the honor to report that since your last account the affairs of the JOURNAL have progressed smoothly, the only serious annoyance being the difficulty of readjusting our plan of advertising. Fortunately the Chairman of the Committee on advertising was easily accessible, and the cases in doubt were referred to him. As a report may be expected from that member, I will not further dwell upon the subject, except to say that we are applying the ASSOCIATION rule absolutely with regard to all *new* advertisements. Many old ones cheerfully furnished the formula, and those that have not furnished the formula, have been informed that the JOURNAL could not renew their contracts without their full compliance with the rule. I caused slips to be printed, of which the following is a copy:

TO ADVERTISERS.

The Board of Trustees adopted, and the ASSOCIATION by unanimous vote approved, the following order:

"Hereafter advertising of medicinal preparations in the JOURNAL shall be limited to those advertisers who furnish for publication in the JOURNAL the official or chemic name and amount of each ingredient contained in the said preparation."

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.

This is sent to all advertisers and advertising agencies, when inquiry is made concerning an advertisement.

The value of advertisements that have been dropped under the rule, is $910.

The value of advertisements that will not be renewed on account of the rule, is $2,388.40.

Advertising orders refused, $345.60.

The amount of changed advertisements by furnishing formulæ is $2,451.20.

Contracts for $1,003.20 are being held awaiting action.

The income of the JOURNAL, May 31 to October 31, from various sources, is $10,683.34.

The regular issue of the JOURNAL has now reached 6,200 copies, and last week was 6,400. It will be seen (from the detailed statement) that the receipts from subscriptions are growing steadily, but do not show the real amount nor the increase, as many of the new subscribers are transferred to the membership list within a few weeks after receiving the JOURNAL. The Treasurer of the ASSOCIATION receives the money from this class. You will be pleased to note that the balance in the ASSOCIATION Treasury has been steadily increasing, and notwithstanding our increased expenses on account of enlargement of the JOURNAL, the balance is larger than at any period in the last four years. The eight page enlargement of the JOURNAL last year proved inadequate to the relief from the pressure of manuscript, and another enlargement was made whereby the average number of pages of reading matter has been raised to fifty-two. For the present, I think the JOURNAL large enough, but sixty pages a week should be the eventual goal. That will allow an increase of matter sufficient to prevent criticism on the part of those who are not interested in specialties and do not like to see so much space given them, by providing an abundance of reading matter for all.

The increase in the subscriptions since the Baltimore meeting has been made by personal letters written by Dr. Montgomery in Pennsylvania, similar letters written by the editor in accordance with a suggestion made by Dr. E Fletcher Ingals, and by a traveling solicitor.

The advantages of the plan of canvassing can scarcely be estimated in dollars and cents, for the work may give results months after the solicitor has made his visit. Beside, most of the subscribers eventually become members of the ASSOCIATION. We now hold applications waiting the receipt of the necessary remittance. There have been very few discontinuances; a marked contrast from the conditions when I assumed the office.

The property of the JOURNAL office is now worth $10,000, a plant which has been wholly purchased within the past two years except the type. An expenditure of $1,200 for new type, and $1,000 for new automatic folder, will be necessary during the next six months. Much inconvenience would be saved the mechanical department by having the type asked for. It is especially necessary when we run the large number of pages, as proofs must be sent to contributors and the type held. An iron chest or cabinet for holding manuscript should be furnished, unless we move into a building having a vault.

The quarters are entirely unsatisfactory. We have to pay high insurance rates, and the persons in control of the building have not put it in repair as was agreed upon. I request to be allowed to look for other quarters by the time of the expiration of the present lease in April next, or sooner, if arrangements can be effected without loss.

The elevator service could scarcely be worse than it is now, and the shaking of the building when the machinery is running gives an impression of insecurity, which is confirmed if the window-sills and walls be examined.

At my solicitation, the Secretary of the ASSOCIATION, Dr. W. B. Atkinson, has prepared a card index to the whole of the JOURNAL down to December, 1894. The instructions of the Board do not say whether to print in the JOURNAL or in book form. In my opinion the index will be more convenient in a book. The estimated cost of 1,000 will be about $500.

I have to commend the employes of this office for their faithfulness and industry. Seldom have I seen an establishment where every person employed seems to have a personal interest in the growth and success of the business; but I have to report that that feeling is the rule in this office, and I have frequently noticed their actual enthusiasm in promoting the success of the JOURNAL within their respective lines.

Finally, I have to thank the Trustees for their encouragement and support, and the patient attention given to the various questions coming before the office for settlement.

Very respectfully, JOHN B. HAMILTON, Editor.

SOCIETY NEWS.

College of Physicians of Philadelphia.—A stated meeting of the Section on Ophthalmology was held in the Lower Hall, College of Physicians of Philadelphia, Oct. 15, 1895, Dr. Wm. F. Norris, Chairman presiding. Present, Drs. Fenton, Harlan, Norris, Oliver, Ring, Risley, de Schweinitz and Zeutmayer, Fellows of the College; and Drs. Keely, Leahman, McGuigan, Pancoast, Posey, Rogers, Schwenk, Shoemaker, Stevens, Thorington, Wetherill; Worrell of Terre Haute; Ziegler and Zimmerman as guests.

DR. GEORGE DE SCHWEINITZ described a case showing angioid streaks in the retina, and exhibited a water color sketch of the ophthalmoscopic conditions.

DR. CHARLES A. OLIVER gave a brief report of the history of a case of successful iridectomy and extraction of lens capsule and lens débris with recovery of vision in an eye that had been considered useless for more than ten years. Dr. Harlan gave a short account of a somewhat similar case where the accident dated back some thirty-three years, and in which the patient's vision was fully restored. By invitation Dr. P. U. K. Schwenk read the details of Dr. Harlan's case.

DR. S. D. RISLEY exhibited a new and compact case for ophthalmic instruments. The case was made of aluminum and white mahogany and had adjustable compartments for sterilizing apparatus.

DR. OLIVER exhibited two cases; one of successful iridectomy for congenital zonular cataract, in which vision was increased for the first time in the patient's life, from finger counting at 35 centimeters to five thirty-fifths, and the other showing the final results of operative treatment in a case of subconjunctival dislocation of the lens, in which vision was restored to full acuity.

The Section then went into executive session. Upon motion adjourned. CHARLES A. OLIVER, M.D.
Clerk of Section.

Harrisburg Academy of Medicine.—The formal opening of the Academy of Medicine, founded by the Harrisburg Medical Society, took place at Harrisburg, November 7, the new building, a roomy brick and brownstone structure, being crowded. The program began with appropriate remarks by Dr. E. H. Coover. Dr. John Curwen, superintendent of the State Hospital for the Insane at Warren and ex-president of the Dauphin County Medical Society, made a few congratulatory remarks. Then Governor Hastings was introduced, and discussed briefly the relation of the medical profession to the Commonwealth. The Governor always makes a good speech, and he was roundly applauded by the assembled doctors and their guests. "Why a Community should support a Medical Library" was the subject of an interesting address by Dr. H. C. Wood, professor in the medical department of the University of Pennsylvania. He gave reasons in support of his subject and happily illustrated his points. "Some Physicians in the Past Century of Dauphin County" was the subject of the historical address by Dr. W. H. Egle, who gave brief sketches of the more prominent men in the medical history of the county and referred to their characteristics. The formal exercises were closed with the benediction by the Rev. Dr. Stewart. This evening at 8 o'clock, a banquet in connection with the opening of the Academy, took place at the Chestnut Street Hall, which was decorated for the occasion. There were numerous toasts.

MISCELLANY.

Tonsillitis of Malingerers.—According to *Le Progrès Medical*, the following unusual development of malingering has been observed at a French garrison-hospital: A French dragoon, who was lying in the garrison at Compiègne, and who wanted a vacation, persuaded a male nurse to blow a little powdered cantharides into his throat. The result, the next day, was a

tonsillitis with pseudo-membranes, and the patient was sent to the hospital. He was treated for eight days, and then was discharged well. No cause for the disease could be discovered, and as he was not sent home to convalesce as he had expected, the nurse fixed him another attack, but was taken sick at the same time. The attending physician thought this mysterious, and one day a tobacco pouch was found in the nurse's bed filled with cantharides powder. The affair was brought before a military court, the nurse received six months' imprisonment, and the dragoon was sent to an African regiment.

Union in Nerves by First Intention.—According to the *Deutsche Medicinische Wochenschrift* for July 4, Gluck presented before the Berlin Medical Society the case of a child of a year and a half, operated on May 7, for extensive tuberculosis in the right radius. In the operation the radial nerve was severed. After careful disinfection the nerve was sutured and then the external wound closed. Union of the wound by first intention resulted. After fourteen days the first symptoms of restoration of the nerve were shown, and about four weeks later the functions of the muscles supplied by the radial nerve became normal. It is believed this is the first recorded instance of primary union in human nerves. Experimental investigations on animals show that after such nerve suturing, a portion of the nerve filaments retain their vitality.

A Medical Contributor to Ethnology.—Dr. Walter J. Hoffman, of the Smithsonian Institute's Bureau of Ethnology has given to the world a book, entitled "The Beginnings of Writing," and intended to trace the first steps in the development of writing among the North American Indians. Dr. Hoffman has been a diligent student of American ethnology; was with Lieutenant Wheeler's expedition into Nevada and Arizona in 1871, post-surgeon in Dakota in 1872, when he was able to study the ethnology of the Sioux, and later, in connection with Professor Haydon's survey and in the Bureau of Ethnology, continued work and study among the American Indians. The publishers' notice says: "Professor Hoffman, one of the most successful workers in the field of American ethnology, presents the first steps in the development of writing, from tangible reminders like quipus and wampum belts, through picture writing to phonetic writing with an alphabet. These first steps are described especially as they are shown among North American tribes. Our native peoples made much use of reminders; they drew truly expressive pictures; they developed complicated systems of pictography; and some peoples of Mexico and Central America were passing from the use of ideograms to phonograms. This transition period is most interesting." In clear and popular language, Professor Hoffman sets forth the latest results of scientific study, and his references are illustrated with many helpful pictures.

Lesions of Fatal Electrical Currents.—An article in the *Lancet* for August 31, gives an abstract of a recent paper by Dr. Kratter on this subject. His report was made to the Styrian Medical Society. The case examined by him was that of a workman who was killed by a shock received while he was occupied in stringing telegraph wires. Post-mortem examination, performed twenty-one hours after death, showed a ruptured blister on the left forefinger, marked rigidity and intense ecchymosis on the dependent parts of the body. There was also hypervenosity of the blood, venous engorgement of the lungs, extravasation of blood into the common sheath of both the carotid arteries and the vagus nerve, and symmetrical hemorrhage along the spinal cord. If an electric current of 1,500 volts acts upon rabbits, some of the animals live, and others show typical symptoms such as tetanic contraction of all muscles and instantaneous stoppage of respiration, the heart, nevertheless, continuing to act. There may also sometimes be found disorganization of the brain, with destruction of the peripheral parts of the cortex and intracranial effusion of blood. The stoppage of the respiration lasts half a minute. From these experiments it results that the first effect consists in permanent or temporary arrest of the respiration. Death from electric shock is, therefore, a form of suffocation, and persons who meet with such an accident are to be treated by artificial respiration, as in ordinary cases of suffocation.

Must Show Authority for Removal of Cadaver.—"If any person without lawful authority, dig up, disinter, remove or carry away any human body," a statute of Iowa proclaims, he shall be punished, etc. One night certain parties were apprehended while dragging a dead body on the ground by means of a rope around the neck and arm attached to a hack. They were armed with revolvers, and had opened the grave and removed the body in a secret and clandestine manner. On appeal from a conviction of one of the men, it was urged that the trial court erred in instructing the jury that, where one who has disinterred or removed a dead body from its resting place seeks to justify the act he must show that he had a lawful permit from the State Board of Health. If it be conceded that it was error to direct the jury that the subject of disinterment and removal of the dead was under the control of the State Board of Health, the Supreme Court of Iowa holds, in the case of State v. Schaeffer, decided Oct. 2, 1895, that the instruction was clearly without prejudice, because it was not incumbent on the State to prove the negative fact that the defendant had no authority to do the act. And, even if that burden was on the State, the proof of the criminal intent and the want of authority was manifest from the manner in which the act was performed. It was incumbent on the accused to show that he was not criminally liable for the act, because he was within the exception in the statute, if such were the fact.

Obligation of Town to pay Physician.—That a town may be liable on an implied contract for services rendered by a physician to a pauper seems to be well settled in Wisconsin. Notice to one of the supervisors of the town also seems to be sufficient to create the contract. But in the case of Beach v. Town of Neenah, decided by the Supreme Court of Wisconsin, September 26, 1895, the town denied all liability. The evidence was to the effect that the physician who brought the suit had seen the chairman of the board of supervisors of the town in relation to the matter, and told him that there were at that time four or five sick in the family in question, and that they were in need of everything, and that they would have to have help; that the chairman said that he would see to it that they should have whatever they needed; and that the chairman knew that this physician was attending the family, who thereafter continued to treat them as a physician. In the circuit court a nonsuit was granted on the ground that this evidence failed to establish an express contract of employment. But the supreme court reverses its judgment, and orders a new trial, holding that upon such evidence it was for the jury to say whether the supervisor so notified acquiesced in the employment of the plaintiff or impliedly agreed that the town should pay for his services after such notice.

Meningitis in the New-Born Due to Umbilical Infection.—In *Pediatrics* the above subject is reported upon briefly as having been discussed at a Section meeting of the New York Academy of Medicine:

"Dr. Ira Van Gieson reported the only two cases of acute exudative meningitis that had been observed in the newborn in the Sloane Maternity Hospital, as a result of infection from the umbilicus. These cases were very carefully recorded, including the results of a bacteriologic examination. On inspection there was no evidence of any abnormal condition about the umbilicus, but on dividing the umbilical vein, this vessel was found to contain pus. Pure cultures of the streptococcus pyogenes were obtained from the meninges and from the umbilicus, and microscopic examination showed a severe acute exudative meningitis. No other lesions were observed. Dr. Tucker said that he had seen several cases illustrative of this remarkable fact, that the pathogenic bacteria in their passage from the umbilicus may pass by certain viscera, and ultimately find a lodgment in some remote part. The only effective treatment for these infections in the new-born was a prophylactic one, and this consisted in carefully dressing the umbilicus with a dry, clean powder. Dr. Fruitnight said that in the earlier years of his practice when moist dressings for the cord had been in vogue, he had seen suppuration of the umbilicus much more frequently than since he had adopted the practice of using dry dressings.

Chinese Testimony Regarding the Japanese Red Cross.—Colonel Cockerill, of the *New York Herald*, sends from Japan a narration by a Chinese officer concerning the operations of

the Red Cross Society of Japan in its humane treatment of himself and other prisoners. This narrative is in effect the involuntary outburst of gratitude of a man who has received kindness and entertainment from a supposed embittered enemy. The writer is a naval officer having an American education, Tsoy Chan by name. The following is a part of his manuscript:

"In the Red Cross Hospital the patients were treated most kindly. Plenty of milk and fresh eggs were given. Rice, beef, fish, turnips and onions formed the ordinary diet. Mr. Mesaki was the superintendent of the hospital, and is a most conscientious man. Unless on public business, he never left the hospital, and every night he went through the patients' quarters twice. The head nurse was Mrs. Tanaka, the wife of an officer, and a very energetic lady. She was not afraid of work and did many kind acts to relieve the sufferers. Ten other nurses were under Mrs. Tanaka, all of whom had special duties at regulated times. The nurses seemed to have administered to the patients with a sense of religious duty. There were two or three Christians among them; the rest, adherents of Buddhism. There were two young doctors who never left the hospital unless doing duty in the prisoners' lodge. They took turns in the night watches. Every morning a senior doctor came to examine the patients. Scrupulous cleanliness was kept in the hospital. One day an army surgeon, Dr. Arima, and the Rev. Mr. Wada, of Tokyo, visited the hospital and spoke to us most kindly, wishing us a pleasant passage home and a joyful reunion with friends and relatives. At the word home, many dropped tears. One night we were treated to a magic lantern exhibition. The different pictures showed the history of the Red Cross Society, and among the pictures were also those of their Majesties, the Emperor and Empress of Japan. The wives of some Japanese officers visited the Red Cross Hospital. The first party gave 3 yen to the patients to buy what they liked; the second party gave 7 yen. Some handkerchiefs, tobacco and cakes were distributed to each of us in the hospital as souvenirs to take back home. It is with an indescribable feeling of sadness and joy that I write this account. It is sad to have been made a prisoner of war; but, having been captured, I am glad that it was my good fortune to have been thus kindly treated. The total number of prisoners at Osaka, including officers and men, was very nearly three hundred, and all agreed that we were better treated than we had any reason to expect. It is usually with reluctance that men speak well of their opponents, but facts like these ought not to be concealed. We have a saying in China that kindness received should never be forgotten. I have not written this account with the joy and enthusiasm of a sensational novelist, but simply to discharge what I feel to be clearly my duty."

Society Notes.

THE Tri-County Medical Society, at its regular meeting held in Paxton, Ill., November 8, elected the following: President, W. P. Pierce, Hoopestown; Vice-President, T. N. Bowe, Loda; Treasurer, J. Y. Campbell.——The annual meeting of the Topeka, Kan., Academy of Medicine and Surgery was held November 11. The following officers were elected: President, M. B. Ward; Vice-President, W. E. McVey; Secretary and Treasurer, Ida C. Barnes.——The annual meeting of the Schuylkill County Medical Association was held in Pottsville, Pa., November 12. The following officers were elected: President, A. P. Carr, St. Clair; Vice-President, A. F. Bronson, Girardville; Secretary and Treasurer, George Little, Tamaqua.

Hospital Notes.

FREDERICK HOLME WIGGIN has been reappointed visiting gynecologist to the New York City Hospital by the Commissioners of Charities and Correction.

POST-GRADUATE HOSPITAL OF NEW YORK.—The Board of Estimate of New York city has made an appropriation of $60,000 in support of the gratuitous hospital and dispensary work done by the above named institution for the year 1896.

HOSPITALS REMEMBERED.—Under the will of the late William Stackpole, of Brooklyn, N. Y., reversionary interests are conveyed to certain charitable institutions. Of these, the St. Mary's Hospital and the St. Mary's Female Hospital will receive each $1,000.

Detroit Notes.

TYPHOID FEVER.—A communication dated October 16, has been received by the Health Board of the city of Detroit, from the State Board of Health, stating among other things, the fact, that owing to the prevalence of typhoid fever in Detroit, the disease has spread to other parts of Michigan, and as a result there have been ten outbreaks and three deaths. It also requests the Detroit Board to enter vigorously upon the work of notification and restriction of the disease in Detroit. On the strength of this communication, Dr. Samuel P. Duffield, health officer of the city, has issued circulars to the nurses and persons in charge of typhoid patients, instructing them to disinfect all discharges as soon as possible, by pouring a quantity of the solution of chlorid of lime or copper sulphate into the bed-pan, and to have the mattresses and other bedding destroyed. He also sent a circular to the undertakers, impressing upon them the necessity of carefully and thoroughly washing out the intestine, either with the solution of one-half pound blue vitriol and one gallon of water, or two pounds zinc sulphate and one gallon of water, and not to place any reliance on the virtue of the embalming fluid to kill the typhoid germ.

DETROIT MEDICAL AND LIBRARY ASSOCIATION.—At the last meeting of this Association, October 14, a very interesting paper entitled. "Hay Fever; a successful Treatment based on a New Theory," was read by Dr. F. W. Strangways, and discussed ably by Drs. E. L. Shurly, P. M. Hickery and H. J. E. Emerson.

WAYNE COUNTY MEDICAL SOCIETY.—At the regular meeting of this society November 14, a very interesting paper on smallpox was read by Dr. John F. Bennett; it was the more interesting from the fact of the existence of smallpox in Detroit at the present time. A number of physicians from Windsor, Ontario, Delray, Highland Park and other surrounding places were present. Dr. J. J. Mooney also read a paper entitled "Angio-neurotic Edema."

PERSONAL.—Dr. N. W. Webber is now convalescent from his late attack of rheumatism.

MORTALITY REPORT for the week ending November 16: deaths, 78; under 5 years, 26. Births, male 53; female 35; total 88. Report for week ending November 16, (contagious diseases) diphtheria: last report 43, new cases 22, recovered 34, died 6, now sick 25. Scarlet fever: last report 11, new cases 6, recovered 4, died none, now sick 13. Smallpox: last report 1, new cases 2, recovered none, died none, now sick 3.

St. Louis Notes.

THE WEEKLY MORTUARY REPORT, gives for the week ending November 16: deaths, 156, compared with 167 during the preceding week, and 165 for the corresponding week of 1894. Births reported, 294. The contagious diseases reported during the week ending November 16, were: diphtheria, 126 cases, 10 deaths; croup, 16 cases, 7 deaths; typhoid, 10 cases, 2 deaths; measles, 15 cases; scarlatina, 8 cases.

ST. LOUIS MEDICAL SOCIETY.—The program of the meeting of November 16 consisted of a paper on "Tuberculosis of the Knee-joint," by Dr. Funkhouser, with prepared discussions by Drs. H. H. Mudd and Pinckney French. The general discussion was further maintained by Drs. Hoffman, Fairbrother, and Hodgen.

CHARITY COMMISSIONERS.—At the regular meeting November 11, the supervision of the various city institutions was divided among the commissioners, and hereafter written monthly reports on each institution will be required. In future, an effort will be made to prevent the prolonged detention of boys in jail in the contaminating atmosphere of the criminal classes.

PROVISION FOR IDIOTS AND IMBECILES.—There has been some public agitation of late of the question of State provision for this dependent class. Such improvements are to be accomplished only after assiduous efforts on the part of those who come in contact with such individuals, and the medical profession should lose no opportunity to show the need of this socially protective charity.

MEAT INSPECTION.—At the request of the Health Commissioner, a bill has been presented to the Municipal Assembly repealing the present meat inspection ordinance and providing for the thorough inspection of live animals intended for food; also, for the inspection of meats of all kinds, poultry, game, etc., when ordered. It provides for the same force of inspectors numerically as now employed, namely, four; one to be a chief inspector at a salary of $150 a month, and three assistants at salaries of $125 a month each. Two of these must be practical butchers. All must work under the

supervision of the Board of Health and each must be secured by a bond of $4,000 for the faithful performance of his duties. Accompanying this bill was a statement of the Health Commissioner who explained that he found that the laws respecting meat inspection were very inefficient; that this branch of the service cost the city $5,000 a year, with very meager results; that quantities of meat unfit for food, but the real condition of which was not revealed by inspection, were sold by the butchers; that no check was placed upon the slaughter of diseased animals; also, that he had ordered the inspection of meats stopped and placed the inspectors at points where the greater number of animals, intended for food were killed.

The St. Louis Academy of Medical and Surgical Sciences, is the title of a new medical society lately organized. The officers are: Dr. G. W. Cale, James Moores Ball, Arthur E. Mink, Emory Lanphear, Thomas G. Summers, Wellington Adams and George H. Thompson. It is reported that the membership is to be limited to 50, and that an applicant for membership can gain admission only upon the merit of a thesis submitted.

Damage Suit.—Dr. Carl Barck has successfully defended a suit brought against him for $10,000 damages, by a patient, for the loss of sight. The case was clearly one where ignorance on the part of the patient had led to a disastrous result, and to a hope to make the Doctor pay for what he was in nowise responsible. One of the patient's eyes had been injured to a degree requiring enucleation; this operation was refused in spite of warning for the safety of the uninjured eye. Later, the patient returned for operation, and the doctor performed enucleation, stating at the time that there was great probability that the operation was then too late to save sight in the opposite eye. The fulfillment of his prediction was the occasion of the suit.

Philadelphia Notes.

The Trustees of the University of Pennsylvania have conferred the title of Emeritus Professor of Comparative Anatomy upon Dr. Harrison Allen, in acknowledgment of his services to the institution in the chair which he recently resigned bearing a similar title.

The Official Statistics of attendance at the University of Pennsylvania show a slight increase over last year. The medical department has 819 in all the classes this year. Last year the number was 815. The dental department has 306 against 278 last year, hygiene 56. or 15 more than last year, and veterinary medicine has 16 less than last term. The total attendance in all departments is 2,472 students. The entering class at the Jefferson is small this year on account of the inauguration of the four years course, while the matriculants at the Medico-Chirurgical have decidedly increased because the fourth year has not yet been made compulsory.

The Cliff Dwellers.—The Archæologic Museum of the University of Pennsylvania has been recently greatly enriched by the addition of the valuable Hazzard collection of remains of the cliff dwellers, a great portion of which was one of the most interesting features of the Chicago Exposition. The collection was formally thrown open November 9 by an address made by Mr. Frank Cushing, who has made a special study, while living among the Zunis, of the primitive races of this continent. Prof. E. D. Cope made a few comments upon the physical characteristics of the cliff dwellers, as illustrated by the perfectly preserved skeletons and mummies contained in the collection. The skulls were artificially flattened at the back, like those of many other Indian tribes. The teeth showed a high type of development, while the hyoid bones and tibias were of a lower type. There is nothing in their remains to separate these primitive people from other American Indians, all of whom probably originally were of Mongolian derivation. The collection of American antiquities in Philadelphia is claimed to be the finest in the world. A course of public lectures will be given during the winter by Mr. Cushing and Profs. D. G. Brinton and Cope, in the library building of the University of Pennsylvania.

Death from Carbolic Acid Accidentally Administered.—A child fifteen months of age, died last week, soon after the administration of a teaspoonful of medicine, and the mother's lips also were burned by kissing the child just after the medicine had been given. At the inquest it was found that the medicine was a very strong solution of carbolic acid, although the prescription called for only one drop of carbolic acid in a two-ounce mixture of peppermint water and plain water. The prescription was given at the dispensary of the Jefferson Medical College Hospital, and the evidence before the coroner appeared to fix the responsibility upon the hospital druggist, who, the coroner intimated, had made the mistake of omitting the peppermint and dispensing equal parts of carbolic acid and water. It was a death from misadventure; but it brings up the question for serious consideration, whether or not the dispensing portion of the service at the out-patient departments of great city hospitals is always on a par with other branches in efficiency and reliability. It is probable that the courts will have occasion to pass judgment upon the question of liability for negligence or mistake by the dispensary druggist, especially if the latter be found not to be properly qualified for the duties of prescription clerk.

Physiologic Experimentation in the Coroner's Office.—The coroner of Philadelphia recently rendered an opinion which claims a place in medical annals. A child 5 years of age, was bitten by a dog, alleged to be rabid, and a few weeks later was brought to the Pennsylvania Hospital with symptoms believed to be characteristic of hydrophobia. After a short illness of less than three days the case ended fatally and a diagnosis of hydrophobia was made. Subsequently, the coronor made an investigation, not because of any suspicion of violence or criminality in connection with the death, but apparently simply on general principles. By direction of the coroner, inoculation experiments were made, and as the rabbits survived and did not become rabid, the conclusion was adopted that the child did not have hydrophobia and at the public inquest the coroner accordingly revised the diagnosis of the physicians who had had charge of the case, and who had had an opportunity to study it clinically. Here is an instance of the dogmatism of the laboratory, about which clinicians have been warned by Professor Lepine, and of which they are likely to experience more in the future.

Philadelphia Home for Incurables.—A children's building has been added to the Philadelphia Home for Incurables, consisting of a main structure three stories high, having a two-story wing on each side, costing $36,474. It is of red mottled brick, with red sandstone trimmings and slate roof, and is fireproof throughout. The main structure contains a reading room, matron's room, reception room and hall and sewing room on the first floor, diet kitchen and four rooms for special sickness on the second floor, and the nurses' and servants' quarters on the floor above. The west wing contains the dry rooms, dining rooms and school rooms, and in the east wing are the sleeping apartments, where each child may have a separate room.

State Pharmaceutical Examining Board.—Of the 172 persons examined in Philadelphia by the State Pharmaceutical Examining Board, but 27 succeeded in passing. Of these 16 received qualified assistants' certificates and 11 received registered pharmacists' certificates. In Pittsburg, 27 out of 108 applicants were passed. The next examination will be held in Philadelphia on January 18.

Washington Notes.

Health of the District.—The report of the Health Officer for the week ended November 9, is as follows: there was an increase of 5 over the previous week in the total number of deaths reported at the Health Department last week. While the mortality from the brain and heart diseases fell from 26 to 6, those from lung maladies increased from 20 to 37. Deaths from typhoid fever decreased from 17 in the preceding week to 8 in the past week. There were but 3 deaths from malarial fevers. The dangerous contagious and eruptive ailments continue in abeyance, there having been but 2 fatal cases of diphtheria in all. There were 97 births reported and 56 marriages. Of all the deaths 26 were in hospitals and but 2 from the coroner. The whole number of deaths was 121, of which 70 were of white persons and 51 colored.

Annual Report of Committee on Public Health.—At the meeting of the Board of Trade held on the 11th inst., the annual report of the Committee on Public Health was read and adopted. The following are the principal subjects of recommendation made with a view to remedying existing evils: 1. The extension of the system of sewerage and the completion and purification of the water supply, including the abolition of pumps and wells and the establishment of a proper system of sedimentation and filtration. 2. The enactment of an effective law regulating the sale and supply of milk. 3. The establishment of a bacteriologic laboratory in connection with the health department. 4. The revision and extension of the sanitary laws and regulations of the District, including the appointment of a committee of

five to prepare and formulate a code thereof for presentation to Congress. 5. The enactment of a law for compulsory vaccination and revaccination. 6. The enactment of a law to regulate the practice of medicine in the District of Columbia. The medical men on the Committee are: Dr. Samuel C. Busey, Chairman; Drs. G. L. Magruder and H. L. E. Johnson.

THE WOMAN'S CLINIC.—At the annual meeting of the contributors to the Woman's Clinic, held on the 5th inst., the Secretary reported that 3,165 patients had visited the clinic for treatment during the year. The following board of directors was elected for the ensuing year: Drs. D. S. Lamb, Ida J. Heiberger; Mrs. Mary F. Case, Miss Minnie E Heiberger, Drs. J. H. Bryan, S. M. Burnett, H. L. E. Johnson, Mary Parsons, D. W. Prentiss, Julia E. Smith, Abbe C. Tyler; Mrs. Cora Dufour, Mrs. Marian H. Anderson, Mrs. Emily L. Sherwood; Drs. H. C. Yarrow, Robert Reyburn, Mabel Cornish; Miss Satie Hyde, Mrs. Walter E. Burleigh, Drs. Sofie A. Nordhoff, Jessie Kappelar, Phebe R. Norris, Ada R. Thomas, Susan J. Squires and Adeline E. Portman. Mrs. Anderson was elected F[illegible] Vice-President; Dr. Lamb, Second Vice-President; Mrs. Mary F. Case, Secretary; and Miss Heiberger, Treasurer. The clinical staff is as follows: Drs. Heiberger, Smith, Kappelar, Cornish, Nordhoff, Dufour, Norris, Thomas, Portman and Squires.

ANNUAL REPORT OF THE SANITARY OFFICER OF THE DISTRICT.—The report of the sanitary officer shows that during the past year the whole number of persons furnished with transportation was 867, at an expenditure of $1,776.55. Attention is called to the increase of the number of persons sent to the hospitals of the District, the record for the year being 3,559, an increase of 483 over the previous year. He renews his former recommendation looking to the establishment of an asylum or hospital for inebriates, where the treatment of such patients should be made compulsory.

MICROSCOPICAL SOCIETY BANQUET.—The twelfth anniversary of the Microscopical Society of Washington was appropriately celebrated on the 12th inst., by a banquet, which proved one of the most enjoyable affairs in the history of the organization. The President of the Society, Dr. Collins Marshall, presided, and Dr. C. T. Caldwell officiated as toastmaker. Toasts were responded to by Drs. Marshall, William H. Seaman, Robert Reyburn and J. Melvin Lamb.

CLINICAL SOCIETY MEETING.—The Clinical Society of the District of Columbia held its regular monthly meeting Monday evening at Columbia Hospital. There was a large attendance. Papers were read by Dr. Van Ezdorf on "Hydrothenudia," and Dr. Louis P. Smith on "Retroflexion of the Uterus." The papers were discussed by Drs. Barton, Barrie, Lewis, Vale, Smith, Van Ezdorf, and others.

MEDICAL SOCIETY OF THE DISTRICT.—At the meeting of the Society held on the 13th inst., Dr. Kober read a paper entitled "Impure Milk in Relation to Infantile Mortality." The paper was discussed by Dr. Geo. M. Sternberg, Surgeon-General U.S.A., Drs. de Schweinitz, Carr and others. The Southern Surgical and Gynecological Society attended as guests.

THE SOUTHERN SURGICAL AND GYNECOLOGICAL SOCIETY.—The Southern Surgical and Gynecological Society held its eighth annual meeting during the present week. Dr. Samuel C. Busey President of the Medical Society of the District, delivered an address of welcome on behalf of the local medical men. The Washington Obstetrical and Gynecological Society entertained them at a banquet on the 12th inst., and Dr. Joseph Taber Johnson gave a reception and banquet at his residence on the 13th inst., after the meeting of the medical society, to which they had been invited. Through the courtesy of Mr. John T. Devine, proprietor of the Shoreham Hotel, the large banquet hall of the house was furnished gratuitously for the use of the society during their session. The society has decided to hold its next meeting at Nashville, the second Tuesday in next November, and elected officers for the ensuing year as follows: President, E. S. Lewis, New Orleans; Vice-Presidents, Joseph Taber Johnson, Washington, and Richard Douglas, Nashville; Secretary, W. E. B. Davis, Birmingham, Ala.; Treasurer, A. M. Cartledge, Louisville. Council, Geo. J. Engleman, Boston; Hunter McGuire, Richmond; W. D. Haggard, Nashville; Bedford Brown, Alexandria, and L. S. McMurtry, Louisville. Committee on Arrangements, W. D. Haggard, Nashville. Many new members were admitted to the Association, and a pleasant incident of the day was the receipt of a handsome gavel from Dr. H. Marion Sims of New York, in memory of his father. The gavel has a very unique history or origin. It was turned from one of the legs of an old operating table used for many years by J. Marion Sims. The next meeting will be held the second Tuesday in November, 1896.

DR. HENRY J. CRASSON'S MARRIAGE.—On the 12th inst., at St. Peter's Church, Dr. Henry J. Crasson was married to Miss Margaret Blaine, daughter of Mr. and Mrs. Robt. G. Blaine, and niece of the late Hon. James G. Blaine. Dr. Crasson was for some time one of the assistant physicians to the Central Dispensary and Emergency Hospital.

CIRCULAR TO MEDICAL EXAMINERS.—The Equitable Life Assurance Society of the United States has sent the following circular to its medical examiners:

Please take notice that on and after Nov. 15, 1895, the following scale of fees for medical examinations will go into effect, in substitution for formerly established rates. These will be uniform throughout the United States, the Canadian Provinces, and Newfoundland:

Case of application for $3,000 insurance or under	$3.00
Case of application for over $3,000 but less than $25,000	5.00
Case of application for $25,000 or upward, short of $50,000	7.50
Case of application for $50,000 or upward	10.00

By order of the President,
EDWARD W. LAMBERT, M.D.,
Medical Director.

N. B.—Installment insurance is reckoned at its commuted value.

THE PUBLIC SERVICES.

Army Changes. Official list of changes in the stations and duties of officers serving in the Medical Department, U. S. Army, from November 9, 1895, to November 15, 1895.

Capt. Eugene L. Swift, Asst. Surgeon, leave of absence granted is extended one month, and he is authorized to go beyond sea.

Major Louis W. Crampton, Surgeon, is granted leave of absence for three months, to take effect on or about Dec. 1, 1895.

APPOINTMENTS.

Thomas Jellis Kirkpatrick, Jr., and John Hamilton Stone, appointed Asst. Surgeons with the rank of First Lieut., to rank as such from Nov. 6, 1895, and ordered to report to the President of the Army Medical School for instruction.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending November 16, 1895.

Surgeon T. Owens, detached from Naval Station, Port Royal, S. C., and granted three months' leave.

Surgeon J. R. Waggener, detached from the "Independence," and ordered to the Mare Island, Cal., Navy Yard.

Surgeon George P. Bradley, detached from the Mare Island, Cal., Navy Yard, and ordered to the "Indiana."

P. A. Surgeon George Rothganger, detached from naval hospital treatment, and ordered to the "Independence."

Surgeon J. E. Gardner, ordered to Port Royal, S. C., Naval Station.

Change of Address.

Fletcher, Wm. W., from Susquehanna to West Carbondale, Pa.

Goode, Thos. F., from Buffalo Lithia Springs to Boydton, Va.; Gihon, A. L., from Washington, D. C., to United Service Club, 16 W. 31st Street, New York, N. Y.

Massey, G. Betton, from 212 S. 15th Street to 1636 Walnut Street, Philadelphia, Pa.; Moffitt, F. W., from 1269 93d Street, to 4257 Cottage Grove Avenue, Chicago, Ill.

Scholer, E. S., from 3 N. Clark Street to 1956 N. Halsted Street, Chicago, Ill.

Vincent, Dr., from La Porte, Ind., to 311-12 "The Arcade" Cleveland Ohio.

Westmoreland, W. F., from Austell to Atlanta, Ga.

LETTERS RECEIVED

Adams, D. S., Manchester, N. H.; Andrews, B. J., Burlington, Vt.; Allport, F., Minneapolis, Minn.; Ayres, H, B., Indianapolis, Ind.; Ammonol Chemical Co., New York, N. Y.; Ayer, N. W. & Son, (2) Philadelphia, Pa.; Alta Pharmacal Co., St. Louis, Mo.

Belt, E. O., Washington, D. C.; Babcock, I, G., Cumberland, Wis.; Brown, Edward J., Minneapolis, Minn.; Bryan, J, H., Washington, D.C.

Cutter, John A., New York, N, Y.; Collins, C. A., New York, N. Y.; Chapman, F. B., Middleton, Mass.

Delevan, D. B., New York, N. Y.

Fraser, E. C., Chicago, Ill.; Fletcher, Wm, W., W. Carbondale, Pa.

Globe Mfg. Co., Battle Creek, Mich.; Goode, Thos. F., Boydton, Va.; Gahagan, Dr. H. J., (2) Elgin, Ill.

Heath, J. W., Schaefferstown, Pa.; Herrick, S. J., Everest, Kan.; Hoil, A. W., Harrodsburg, Ind.; Hummel, A. L., Advertising Agency, New York, N. Y.; Horwitz, Orville, Philadelphia, Pa.

Irwin, F., Washington, D. C.; Imperial Granum Co., New Haven, Conn.

Kinnaman, A S. Cleveland, Ohio.

Lehn & Fink, New York, N. Y.; Longmans, Green & Co., New York City; Larkins, E. L., Terre Haute, Ind.; Lippincott, J. B., Company, Philadelphia, Pa.

Mitchell, Chas. L., Philadelphia, Pa.; McMaster, H. B., Waynesboro, Ga.; Miller, J. Martin, New York City; Metcalf, C. N., Indianapolis, Ind.; Moorman, H. C., Summerville, Tenn.; Morse Advertising Agency, Lyman D., New York City; Mellier Drug Co., St. Louis, Mo.; Maltine Mfg. Co. The, New York City; McBride, M. A., Leesville, Tex.; McCarty, C. E., Chicago; Mills, H. R., Port Huron, Mich.

Newman, Dr. Robert, New York City; Newman, H. P., Chicago.

Plummer, The R. N. Co., New York, N. Y.; Palladium The, Ann Arbor, Mich.; Publishers Collection Agency, Chicago Ill.; Paquin, The Paul Laboratories, St. Louis, Mo.; Parke, Davis & Co., Detroit, Mich.; Polk, R. L. & Co., Detroit, Mich.

Ridlon, John, Chicago, Ill.; Reichman, Max, Chicago, Ill.

Schieffelin & Co, New York, N. Y.; Stearns, F. & Co., Detroit, Mich.; Supervising Surgeon-General, Marine Hospital Service, Washington, D. C.; Smoley, J. G., Connersville, Ind.; Schimmel, M. S., Baltimore, Md.; Shlensky, J., (2) Washington, D. C.; Schering & Glatz, New York, N. Y.; Tarrant & Co., New York, N. Y.; Tabb, W. R. & Co., New York City; Tuttle & Clark, Detroit, Mich.

Vincent, D., Cleveland, Ohio.

Willcox, E. S., Peoria, Ill.; Woodruff, J. O. & Co., New York, N. Y.

Zumo Pharmacal Co., St. Louis, Mo.